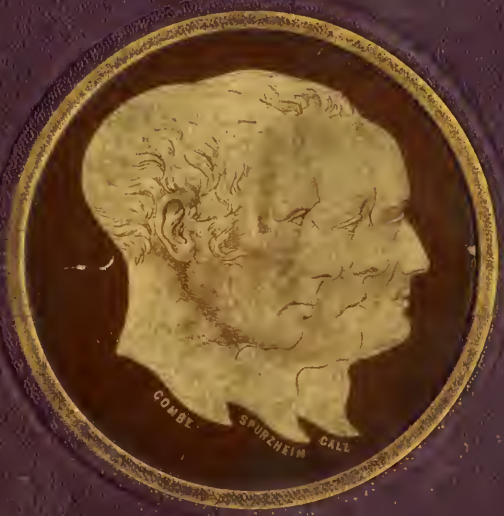

COMBE.
SPURZHEIM
GALL

YALE
MEDICAL LIBRARY

HISTORICAL LIBRARY

The Gift of

BRITISH
PHRENOLOGICAL
SOCIETY

Digitized by the Internet Archive
in 2012 with funding from
Open Knowledge Commons and Yale University, Cushing/Whitney Medical Library

http://www.archive.org/details/phrenologyhowtou00morg

THE BRITISH PHRENOLOGICAL SOCIETY (Incorporated).
FOUNDED 1866. INCORPORATED 1888.

Yours Truly
Nicholas Morgan

PHRENOLOGY,

AND

HOW TO USE IT IN ANALYZING CHARACTER.

BY

NICHOLAS MORGAN.

ILLUSTRATED BY NUMEROUS PORTRAITS AND OTHER ENGRAVINGS.

LONDON:

LONGMANS, GREEN, AND CO.

1871.

[*The right of Translation is reserved.*]

T. MORGAN AND CO., PRINTERS, MONKWEARMOUTH, SUNDERLAND.

PREFACE.

The object of this treatise is to promote the advancement of the science of phrenology, and to draw attention to its usefulness in analyzing character.

To get to know our own mental and physical constitution is a valuable acquisition; and next to it in importance is to acquire a knowledge of the external signs of the mental traits of our fellows,—that is, to be able to read the lines impressed on men's heads by the unerring operation of God's laws, so as to form correct judgments of people's dispositions, talents, and adaptabilities.

The testimony of an impartial, intelligent, and correct observer as to the talents and character of any individual with whom he is well acquainted, is valuable; but the testimony of God, as published in the volume of human nature, is as much more reliable than man's as He is superior to man in wisdom, knowledge, and goodness.

Physiognomy is a useful aid to the character analyst; but the phrenological system is pre-eminently the most useful yet discovered.

The principles of phrenology, with instructions for their right application in the study of character, are so fully

and plainly set forth in the following pages, together with suitable examples and illustrations of their operation, that any diligent student of ordinary capacity may master them.

Utility, and undeviating fidelity to truth (not novelty), have been my aim in preparing this work; yet something in the way of freshness will be found here and there in its pages. The discovery of four new organs may be cited as an example;—the history of these is duly chronicled, with expositions of their functions.

In a review of the usual modes adopted by phrenologists in measuring the size of the head, and of the individual organs, a useful digest is given of Straton's valuable contribution to the "Mathematics of Phrenology," and a few improvements on the subject of measurement are also suggested. Something new will be found in the sections devoted to the faculties of Continuitiveness, Ideality, Marvellousness, Mirthfulness, Individuality, and Marriage.

The application of phrenology to education, criminal legislation, and the management of the insane, is not treated of, except incidentally, in the present work, but may form the theme of a subsequent treatise.

N.M.

Monkwearmouth, July 5, 1871.

CONTENTS.

CHAPTER I.

Page

Inequality of mental endowment 1
Antiquity of physiognomy, ... 2
Lavater's system and its imperfections, ... 4
How a lovely countenance may be acquired, . . . 6

CHAPTER II.

FUNDAMENTAL PRINCIPLES OF PHRENOLOGY.

Eight fundamental principles, or what phrenology teaches, 7
Blumenbach's divisions of the human race, . . 8
The Caucasian—The Mongolian, ... 9
The Malay—The American Indian, ... 10
The Ethiopian—Racial differences, ... 11
Mental traits of the European family, ... 13

CHAPTER III.

DISCOVERY, RISE, AND PROGRESS OF PHRENOLOGY.

Birth, death, characteristic traits, and early observations of Dr. Gall, 15
Ancient philosophers on the location and attributes of the mind, 16
The phrenological organs that were discovered by Gall, . 19
Dr. Spurzheim becomes Gall's assistant, . . . 20
Dr. Gall's method of investigation, ... 21
Persecution of truth-seekers, ... 22
Prohibition of phrenology by the Emperor of Austria—Drs. Gall and Spurzheim become exiles, ... 23

Page
Death of Dr. Gall, ... 24
Dr. Spurzheim's discoveries, ... 25
Mr. Combe embraces phrenology—his ability and labors, . *ib.*

CHAPTER IV.

THE BRAIN THE ORGAN OF THE MIND.

The characteristics of mind, ... 27
The brain the organ of the mind, ... 28
Duality of the brain, ... 31
Plurality of mental powers—an ancient dogma, . . 33
The mental system of the schools and Gall's contrasted, . 34
Mental standards, an illusion of the fancy, . . 35
Genius—Whether is it produced by nature or study? . . 38
Plurality of mental powers proved by—
First, the difference of the senses, . . . 39
Second, by partial genius, ... 40
Third, by idiocy, ... 44
Fourth, by the difference of the relative size of the cerebellum and the cerebrum at birth, and at maturity, . 45
Fifth, by mental alienation, . . . *ib.*
Sixth, by dreaming—Definition of dreaming, . 47
Seventh, by the effects of change of study, . . 48
Remarkable experiences, ... *ib.*
Practical reflections, ... 59

CHAPTER V.

SIZE AND QUALITY THE MEASURE OF POWER.

Difference of mental power and intellectual power, . 62
Connection between organic size and energy of function, . 63
Weight of the human brain, ... 65
Difference in the quality of brains, . . . 66
Indebtedness of phrenology to ethnologists, . . *ib.*
Dr. Morton's and Dr. Davis's ethnological collections, and their different modes of measuring cranial capacity, . 67

Page
Essential elements of psychical measure, . . . 69
Examples of organic size and energy of function, . 70
Difference between power and activity, . . . 71

CHAPTER VI.

THE TEMPERAMENTS.

Hippocrates' definition and classification of the temperaments . 73
Spurzheim's classification, ... 74
Dr. Thomas's definition and classification, . . 75
Inappropriate names of the temperaments, . . 76
Messrs. Fowler and Wells's classification, . . . 77
Origination of the temperaments, . . . 78
The best classification, ... 79
Pleasure and pain the chief prompters to action, . 80
External indications of the temperaments, . . . 82
Changeability of the temperaments, . . . 86
Practical uses of the temperaments, . . . 87
Physical regeneration—how to obtain it, . . 90
Constitutional quality, ... 91
Innate energy and endurance, . . . 92
The Centre of Energy, ... 96

CHAPTER VII.

THE HUMAN SKULL.

Anatomy of the Cranium, ... 99
The frontal sinus, ... 104
Parallelism of the brain and the head, . . . 108

CHAPTER VIII.

THE BRAIN AND NERVES.

Adaptation—the regulating law of nature, . . 110
The proper sphere of the phrenologist, . . 111
Anatomy and functions of the nerves, . . . 112

Page
Ganglions, their structure and use . . . 115
Structure of nervous plexuses, ... 116
Origin of the nerves, ... 117
Anatomy of the brain, ... 118
Change of the form of the head in process of growth, . 130
Straton's researches in cerebral development, . . *ib.*
The progressive development of the head tabulated from seven days of age to fifty years, ... 131

CHAPTER IX.

PRACTICAL APPLICATION OF PRINCIPLES.

Characteristics of a primitive faculty, . . . 137
Instructions how to analyze character, . . 138
Rules of measurement, ... 139
Advantages of a model bust, . . . 140
Mathematics of phrenology—Straton's measurements, . 141
Illustrations of Straton's measurements, . . 142
Chief phrenological divisions of the head, . . 146
Mr. Combe's division of the basal and coronal regions, . 147
Mr. Frederick Bridges' division of the basal and coronal regions, 148
On measuring the length of an organ—Spurzheim's instructions, *ib.*
Relative positions of the ear and the medulla oblongata, . 149
Difference in the positions of the ears, . . 151
Unreliable systems of measurement, . . . 152
Function of the grey cerebral substance, . . 156
Points from which to measure the length of the organs, . 157
How to measure the breadth and the thickness of the organs. 158
Description of the Calliper Phreno-Physiometre, . . 159
The phreno-metrical angle, its variations and importance, 163
Particularly shaped heads, and what they indicate, . . 166
Hereditary transmission of qualities, . . . 171
Parental responsibility, ... 172
"Bumpology," 173
Effects of circumstantial influences, . . . 174
Phrenology does not teach that particular actions can be predicated, 175

CHAPTER X.

THE PRIMITIVE FACULTIES—THEIR ORGANS AND CLASSIFICATION.

Page

The classification of the faculties by metaphysicians, . 176
Dr. Gall's researches and their results, . . *ib.*
Quantitive and qualitative affections, . . . 177
Dr. Gall's and Dr. Spurzheim's classification of the faculties, 178
Unsatisfactoriness of Dr. Spurzheim's classification, . . 180

Affective Faculties—

Amativeness, ... 182
Philoprogenitiveness, ... 193
Continuitiveness and Inhabitiveness, . . 198
Adhesiveness, ... 213
Marriage, or Union for Life, . . . 216
Defensiveness, ... 220
The Centre of Energy, . . . 223
Destructiveness, ... 226
Alimentiveness—Bibativeness, . . . 233
Secretiveness, ... 237
Acquisitiveness, ... 241
Constructiveness, ... 243
Self-Esteem, ... 245
Approbativeness, ... 248
Cautiousness, ... 249
Benevolence, ... 251
Veneration, ... 255
Firmness, ... 258
Conscientiousness, ... 265
Hope, ... 267
Marvellousness, or Love of Change, . . 269
Love of the Picturesque, or Ideality, . . 275
Sublimity, ... 285
Imitation, ... 286
Humorousness, ... 287
History of the organs of Graveness, Gayness, and Awe, 302

Page

Graveness, ... 305
Gayness, ... 310
Awe, ... 312

CHAPTER XI.

Sensation, ... 314
The Senses—their organs, functions, and use, . . 315

CHAPTER XII.

Introductory remarks on the Intellectual Faculties, . . 319

Perceptive Faculties—

Individuality, ... 321
Form, ... 331
Size, ... 332
Weight, ... 333
Color, ... 334
Locality, ... 335
Number, ... *ib.*
Order, ... 339
Eventuality, ... *ib.*
Time, ... 340
Tune, or Sound, ... 342
Language, ... 343

Reflective Faculties —

Comparison, ... 347
Causality, ... 349
Human Nature, ... 351

CHAPTER XIII.

The effect of faculties acting in combination,—Temper, . 355
Memory, ... 358

PORTRAITS.

		Page
	FRONTISPIECE—The Author.	
1.	W. H. HEAVISIDES, (the Nutritive Temperament)	82
2.	JAMES SCOTT, artist, (Sanguine Temperament)	*ib.*
3.	LORD NAPIER of Magdala,† (Muscular Temperament)	83
4.	CHARLES A. SWINBOURNE,† (Mental Temperament)	*ib.*
5.	The late PROFESSOR SYME, F.R.C.S.	230
6.	PRINCE BISMARCK,	264
8.	THOMAS WILLIAMS,	198
9.	THOMAS CARLYLE,†	246
10.	The late PRINCE CONSORT,	247
11.	CHRIST,	254
12.	Rev. Canon KINGSLEY,†	*ib.*
13.	Rev. Dr. GUTHRIE,†	288
14.	Dr. MANNING, Roman Catholic Archbishop of Westminster,	256
15.	EARL RUSSELL,†	*ib.*
16.	EMANUEL SWEDENBORG,	274
17.	The late Sir JAMES Y. SIMPSON, M.D.,	*ib.*
18.	HENRY W. LONGFELLOW,†	285
19.	Mrs. M—— P——,	294
20.	Mrs. F—— C——,	306
21.	Miss BATEMAN, actress,	344
22.	WILLIAM BROCKIE, philologist and editor,	322
23.	DANIEL MACLISE, R.A.,†	*ib.*
24.	GUSTAVE DORE, artist,	333
25.	J. E. MILLAIS, R.A.,†	*ib.*
26.	Dr. LIVINGSTONE,	335
27.	ALEXANDER MILLER, the Montrose Calculator,	337
28.	Dr. CANDLISH,	349

† From a photograph by ELLIOTT & FRY, London.

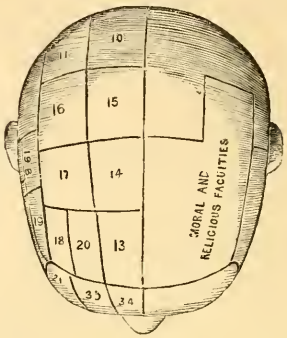
ILLUSTRATIONS.

		Page
1.	Model Bust, Top View,	xiv
2.	——— Front View,	xv
3.	——— Back View,	*ib.*
4.	——— Side View,	*ib.*
5.	Caucasian,	9
6.	Mongolian,	*ib.*
7.	Malay,	10
8.	American Indian,	*ib.*
9.	Ethiopian,	11
10.	The Temperaments—Nutritive,	82
11.	——— ——— Sanguine,	*ib.*
12.	——— ——— Muscular,	83
13.	——— ——— Mental,	*ib.*
14.	Human Skull—Side View,	99
15.	——— ——— Back View,	101
16.	——— ——— Front View,	102
17.	——— ——— perpendicular section of,	104
18.	Anterior view of a Section of the Spinal Cord,	116
19.	Base of the Human Adult Brain,	120
20.	Section of Skull and Brain,	121
21.	Upper Surface of the Human Brain,	124
22.	Side View of the Human Brain,	125
23.	Showing the changes of the form of the head that take place in the process of growth from infancy to maturity,	135
24.	Skull showing Straton's points of measurement,	142

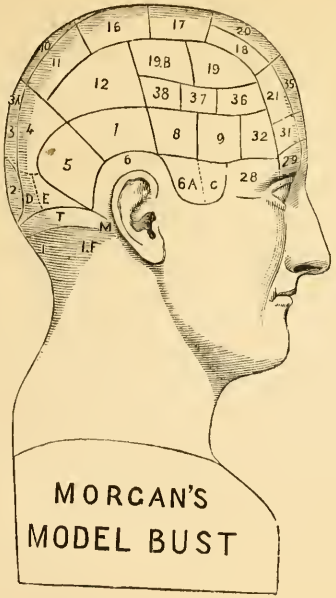
		Page
25.	Elihu Burritt, linguist and philanthropist,*	150
26.	George Combe,†	151
27.	William Palmer, poisoner,*	152
28.	Dr. Pritchard, poisoner,*	153
29.	The Calliper Phreno-Physiometre,	160
30.	——————— Perspective View of,	161
31.	Amativeness, small,	183
32.	——— large,	*ib.*
33.	Mr. K——, Amativeness very large,	*ib.*
34.	Female skull,	192
35.	Male Skull,	193
36.	Skull of Burns,*	195
37.	Rev. J. Cranbrook,	198
38.	Dr. Spurzheim,	199
39.	William Palmer, poisoner, (front view),	226
40.	Gosse (back view), Benevolence very large,	*ib.*
41.	Linn, pugilist and parricide,	227
42.	Professor A———, large Self-Esteem,	246
43.	Gosse (side view), Benevolence very large,	252
44.	Eustache, the Benevolent negro,	253
45.	Joseph Hume, statician,	256
46.	Rammohun Roy, the learned Orientalist,	257
47.	Millar, the Stirling Murderer,	260
48.	Dr. Gall,	261
49.	Back View of two male heads,	267
50.	Graveness and Marvellousness illustrated,	309
51.	George Bidder, calculator,	337
52.	Zerah Colburn, calculator,	*ib.*

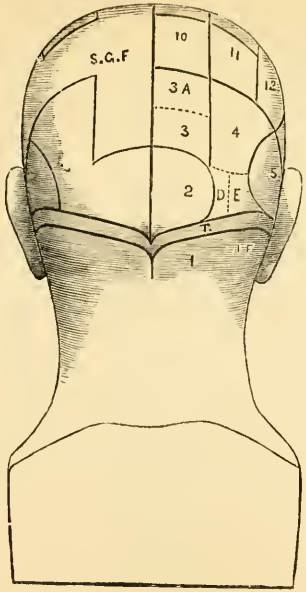
* An asterisk indicates that the figure has been taken from a cast.

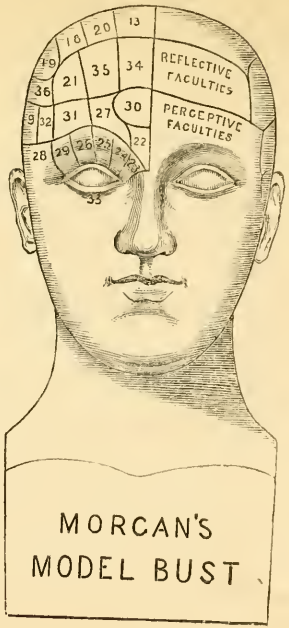
† This profile of Mr. Combe is a fac-simile of a cast taken from nature, excepting the form of the mouth which is rather defective.



1. Amativeness.
2. Philoprogenitiveness.
3. Inhabitiveness.
3.A. Continuitiveness.
4. Adhesiveness.
D. Marriage or Union for Life.
5. Defensiveness.
E. The Centre of Energy.
6. Destructiveness.
6.A. Alimentiveness.
C. Bibativeness.
7. Secretiveness.
8. Acquisitiveness.
9. Constructiveness.
10. Self-Esteem.
11. Approbativeness.
12. Cautiousness.
13. Benevolence.
14. Veneration.
15. Firmness.
16. Conscientiousness.
17. Hope.
18. Marvellousness.
19. Love of the Picturesque.
19B. Sublimity.
20. Imitation.
21. Humorousness.
22. Individuality.
23. Form.
24. Size.
25. Weight.
26. Color.
27. Locality.
28. Number.
29. Order.
30. Eventuality.
31. Time.
32. Tune.
33. Language.
34. Comparison.
35. Causality.
36. Graveness.
37. Gayness.
38. Awe.
T. Tentorium.
M. Mastoid Process.


MORGAN'S
MODEL BUST


S.G.F


REFLECTIVE
FACULTIES
PERCEPTIVE
FACULTIES
MORGAN'S
MODEL BUST

ERRATA.

For, "Hippocates," p. 18, l. 18,—read, Hippocrates.
For, "Dr. J. B. Davis, M.D., F.S.A.," p. 66, l. 25,—read, Dr. J. B. Davis, F.S.A.
For, "the posterior lobe is of equal depth," p. 94, l. 3,—read, the posterior and middle lobes are of equal depth.
For, "is it," p. 160, l. 4.—read, it is.

CHAPTER I.

INTRODUCTION.

INEQUALITY of mental endowment and its bodily indications have been observed from the beginning of time. Cain and Abel were manifestly actuated by different dispositions. Wounded ambition and jealousy, the canker-worms of the mind, caused Cain to hate his brother, and thirst for vengeance. They excited in him a fit of frenzy, and gave predominating sway to destructive passion, to which Abel fell the victim. Signs of character, as reflected in the bodily movements and the expressions of the countenance, were amongst the earliest human observations, and physiognomy is of the greatest antiquity. The term physiognomy, according to its etymology, means the appearance of nature generally; but it is now principally applied to denote outward signs of internal mental qualities and power. There are two kinds of physiognomical signs, namely (1), Those of form, which indicate innate power to act, and tendencies to action; and (2), those of expression and gesture, as indicative of powers in action. The latter constitute the language of nature, by which the mind makes known its feelings, wants, desires, and intellectual pursuits. It is not my intention to treat of this class, except in illustration of the natural language of the mental

powers, which will be duly considered hereafter. I may however observe, that the more prominent of them are perceived intuitively, and are spoken of in ordinary conversation in expressing our opinion of others. Persons are said to have bold, shy, fierce, generous, cunning, thoughtful, determined, courageous, timid, or open countenances. Solomon speaks of a "proud look," of the "beautiful eye," and the "evil eye." He also says, a "naughty person, a wicked man walketh with a froward mouth. He winketh with his eyes, he speaketh with his feet, he teacheth with his fingers." Infants and animals understand this class of signs. It is very interesting to watch the effect of facial expression and intonation on young children. Forbid them doing anything they feel interested in performing, they analyze the tones of voice in which the command is given, look you earnestly in the face, and form correct conclusions as to the extent of your meaning—whether firm and determined, or undecided and yielding—and act accordingly. Even baby laughs and crows, or frets and pouts, as nurse looks pleased or angry; and a dog instinctively perceives by the expression on his master's face whether he may with impunity disobey his commands.

Physiognomy has been studied in all ages. Pythagoras is said to have become acquainted with it in India and Egypt, and he introduced it into Greece, where it was diligently studied and brought into practical use. Pupils, before entering the Pythagorean schools, had to undergo a physiognomical examination; and, there is reason to believe that, at this early period of the history of learning, this science formed a regular branch of Grecian philosophy.

Plato was a physiognomist; and Aristotle wrote a treatise on the subject, in which he affirmed that the Thracians, the Scythians, and the Egyptians differed from other nations and peoples in their habits and manners, and moral and intellectual qualities. The philosophers of Greece—whose estimate of the value of self-knowledge may be gathered from the fact of the motto, "Know Thyself," being emblazoned in letters of gold on the temple of Delphos—could not overlook the advantages to be drawn from physiognomical investigations. They observed, as an invariable law of nature, that there existed a determined relationship between outward appearances and internal powers. The knowledge of this principle was invaluable to Grecian artists; and, in the statuistic representation of their deities, perfect congruity of form with mental states are manifest; or, the psychonomy of the gods is delineated in the physiognomy of their statues.

In Rome, physiognomy was taught by regular professors, and several distinguished orators were exceedingly fond of the science, among whom honourable mention may be made of Cicero. From this period to the eighteenth century, many distinguished men of letters in various parts of Europe were devoted adherents to this science, and promulgated its principles by tongue and pen. It had, however, for many years been generally neglected, and allowed to decline, and was fast sinking into the same limbo with astrology, alchemy, cheiromancy, and other "sciences falsely so called," when Lavater took it under his fostering care, and succeeded in reviving its energies. He was an accurate observer, and untiring in his attention to his nursling. He accumulated a large amount of evidence in support of the doctrine laid

down by the ancients—of the relationship between external appearances and internal power, and of signs of particular mental traits. He embodied his views in a pamphlet which was published in 1772, and three years later his great work appeared, which gave a fresh impetus to the science, and earned for him an enduring fame. His system gained many adherents, and flourished for nearly a quarter of a century, but ultimately lost caste and fell into the shade. It lacked the enduring elements of completeness and positive knowledge. Notwithstanding Lavater's acknowledged ability, the principles he laid down for estimating character were not based upon unchangeable laws; hence, they were not invariably applicable, and were therefore unreliable. An idea of the views of Lavater may be gathered from the following quotations. He says, "Of all the organized beings discoverable by our senses, there is no one in which are collected and blended three sorts of life so different from each other, and which at the same time unite, in a manner inconceivably marvellous, to form but one whole; the *animal*, the *intellectual*, and the *moral* life; each of which is, moreover, a combination of powers essentially different, but perfectly harmonious." "To *know*, to *desire*, to *act*,—or, rather, to observe or think, to feel and be attracted, to possess the power of motion and resistance—these render man a *physical*, *moral*, and *intellectual* being." "Man can be known only by certain external manifestations—by the body, by his surface. Spiritual and immaterial as the internal principle is, and however elevated by its nature beyond the reach of sense, it is rendered visible and perceptible only by its correspondence with the body, where it resides, and in which it acts

and moves as in its proper element. This principle thus becomes a subject of observation; and everything in man that can be known is discovered solely through the medium of the senses." "The organization of man distinguishes him from all the other inhabitants of the globe." (Lavater's Works, 5th Edition, vol. i., pp. 14, 15, 1789.) Numerous signs of character are located in the face and forehead; but any system of mental science that is based solely upon these signs will necessarily be incomplete; for though the strength of the intellect may be inferred from the development of the forehead, its action is controlled by the moral sentiments and animal feelings, whose signs are in the upper, lateral, and back parts of the head; and their activity and energy must be carefully estimated in judging of mental tendencies. The signs of facial expression and gesture, or the movement of the soft parts, are valuable as indicating particular faculties in action, and as giving some clue to those most accustomed to act, and the intensity of their action. If one or more mental faculties be more frequently exercised than the rest, the muscles of the face which are brought into play to express their states, tend to persistent action, and produce the characteristic expression of countenance. Settled gloom, gaiety, perverseness, integrity, thoughtfulness, amiability, craftiness, animality, or genuine humanity may be depicted therein. But if brought under strong exciting causes, so as to arouse to activity, and give an impetus to any of the hitherto dormant faculties, another class of the facial muscles will be brought into play; and if the stimulus be repeated sufficiently often to keep them active, the physiognomy will be correspondingly altered. A person might therefore,

by this class of signs—of which Lavater's system is mostly composed—be judged at one time exceedingly immoral, and a short time afterwards traits of character the very opposite might be inferred; hence the change in physiognomy of such men as Richard Weaver, the converted collier, who was famed for gross wickedness, and looked the personation of vulgarity and debasement previous to his conversion; but the powerfully elevating influences of the Christian gospel having effected a mighty change, his countenance mirrors it forth. No wonder, then, that the physiognomical system of Lavater was so short lived. Notwithstanding, the face has, not inappropriately, been termed the index of the soul. Those who desire good and beautifully attractive physiognomies must live well. Constant practice of justice, equity, and beneficence, will invariably stamp integrity and amiability on the face. If an open countenance be desired, low-cunning and selfishness must be subdued by habitual frankness and love of mercy. Let the intellectual faculties and moral and religious sentiments be kept active, and gain a perpetual ascendency over the animal nature, then, the index hand on the dial of mind will point out all the ennobling traits of humanity.

The only complete and reliable physiognomical system is that which is based on the fixed and unchangeable laws of nature, as embodied in Phrenology.

CHAPTER II.

FUNDAMENTAL PRINCIPLES OF PHRENOLOGY.

The term phrenology is derived from two Greek words (*phren* and *logos*), and means a discourse on the mind; but it is chiefly used to designate the system of mental science founded by Dr. Gall, and established in conjunction with his able coadjutor, Dr. Spurzheim. This science teaches:—

First.—That the mind is dependent on the brain for its information of the outer-world, and for manifesting its powers or faculties; or, that the brain is the chief organ of the mind.

Second.—That the brain is not a single organ, but a congeries of organs, each being the seat of a primitive faculty having particular functions.

Third.—That when the organs of any individual are equally healthy, and have been similarly educated and exercised, the mental faculties act with a degree of energy in proportion to the size of their respective organs; or that, other conditions being equal, size is the measure of power.

Fourth.—That the brain varies in size and form in different persons, and that their mental tendencies and intellectual capacities vary in like proportion.

Fifth.—That organic quality and the temperaments affect the energy and activity of the faculties.

Sixth.—That the faculties generally act in groups of two or more; but not always in concert.

Seventh.—That the size and form of the brain, and of the individual organs, are ascertainable by the size and configuration of the head; and that the quality of the brain may also be ascertained.

Eighth.—That mental characteristics and tendencies can be minutely estimated by the practical application of the foregoing principles. But, in analyzing character, it is necessary that the analyst should make due allowance for every thing and circumstance calculated to affect the activity of the faculties, and especially the nature and amount of education which the individual under examination has received, and also the character of the society in which he or she has moved.

Note.—The science of phrenology does not teach that particular actions can be predicated, nor does it teach that any person must necessarily act in a certain manner. It teaches that talents, dispositions, capacities, and adaptability or non-adaptability alone can be inferred from the form of the head.

Whatever hesitation there may be on the part of those who have not studied phrenology, to admit that mental characteristics and tendencies may be inferred from the configuration of the head, the fact, that there is an intimate relation between outward form and innate power, is universally believed. This important law of nature is everywhere apparent, but more strikingly so in the different races of men. Blumenbach divides the human race into five varieties, namely, the Caucasian, Mongolian, Malay, American or Red Indian, and Ethiopian. These again are divided into numerous subdivisions or families.

The chief families of the Caucasian variety are,—the Circassians proper, the Germanic branch, the Celtic, the

Arabian, the Lybian, the Nilotic, and the Hindostanic. The head of this race (fig. 5) is large and oval-shaped, with an elevated and amply developed forehead, and a well proportioned face. The hair is in general fine in texture, and the skin fair. They present the finest specimens of symmetry and beauty, and the highest state of mental endowment and intellectual culture. Amongst them, religion, liberty, literature, refinement, the arts and sciences, and everything that tends to ennoble man, have reached the highest point of cultivation in the present age, and genius has attained its mightiest results. They are destined to be the conquerors and sole inhabitants of the world.

CAUCASIAN. (Fig. 5.)

The artist has drawn this Figure on a smaller scale than those illustrating the other varieties.

The Mongolian variety of mankind (fig. 6) are very numerous, and are spread over an immense portion of Asia, from the line of the Ural and Himalaya Mountains to Behring's Straits, and over more than one-half of North America, towards the Arctic circle, also Greenland, and a portion of the North of Europe, comprising the Finland and Lapland coasts. The head of this variety is oblong and flattened at the sides, giving an appearance of squareness, the forehead is low, the cheek-bones broad and flat, and the nose broad and short. The hair has

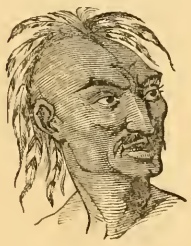
MONGOLIAN. (Fig. 6.)

an olive-tint, and is long and straight; but the beard is usually scanty. They rank next in civilization and in intellectual culture to the Circassians, but are not remarkable for mental power. They are more distinguished for imitative than inventive genius; and their moral character is low.

The Malay race (fig. 7) inhabit the Asiatic and Polynesian islands. The forehead of this variety is broad and low, and the crown is high, the mouth is broad and large, the nose short and concave, and the upper jaw projects. The hair is black, coarse, and straight, and the skin dark and coarse. They are said to be ingenious, and fond of maritime enterprise, to possess considerable intellectual capacity and physical activity; but they are generally inferior to the preceding classes, and, as yet, have shown themselves incapable of holding their position against the inroads of European civilization, and will, in all probability, ultimately become extinct as a race.

MALAY. (Fig. 7.)

The American Indians or Red race (fig. 8) have comparatively small heads, prominent brows, receding foreheads, rising crowns, and are flat at the back part of the head. They have high cheek-bones, prominent, aquiline nose, and hard rough features, with straight, symmetrical frames. The eyes are deep-set, and the mouth is large. They are intractable, averse to culture



AMERICAN INDIAN. (Fig. 8)

and civilization, and are consequently fast disappearing from the face of the globe.

The Ethiopian race (fig. 9) comprise the Negroes of Central Africa, the Kafirs, the Hottentots, the natives of Australia, and some of the islands of the Indian Archipelago and the Pacific Ocean, and a great part of the imported specimens of America. They have small but rather long heads, which are fully developed behind, and the upper part is rounded off at the brow and crown, giving it an arch-like aspect. They have high cheek-bones, projecting jaws, large mouth, and thick lips. The skin is black, the hair is also black and woolly They vary greatly in talent; but, as a race, have shown no inventive genius, and stand the lowest in the scale of intellectuality. They are of an indolent but cheerful disposition.

ETHIOPIAN. (Fig. 9.)

The varieties of the human family are quite distinct in cranial conformation, and their mental status is as widely different. The head of the Circassian is higher than that of the other classes, and his moral character equally transcends. The noble expansiveness of the Circassian forehead is indicative of intellectual superiority. There are, however, great family and individual differences in each class, and their mental traits are modified in like proportion. In the mixture of the races, the blood of the Circassian exerts an elevating influence; but the arterial fluid of the other classes has a deteriorating tendency on him, in the ratio of its quantity.

A comparison between the Red Indians and the Negroes of America is highly instructive. In the former we have intractability, infatuated stubbornness, love of liberty, implacable enmity to all the refining influences of civilization, and persistent continuance in original barbarity; whilst the latter tamely permitted themselves to be bought, sold, and used as animals of burden for ages, and would have remained in their degraded condition for ages to come had they been left to themselves; but Providence, interfering on their behalf, loosened their bonds, and proclaimed their liberty on the American continent, though at a dreadful sacrifice of human life and treasure. It would be impossible to make slaves of the Red Indians. The Negroes passively submitted to the degradation. Let us look at the conformation of the heads of these races. What are their peculiarities? The head of the Indian is characterized by rotundity, low retreating brow, and an enormously high crown. The Negro likewise is remarkable for a low forehead, but the crown is also low, whilst the centre is elevated, giving to the posterior and anterior portions of the upper part an appearance of having been rounded off. The head is narrow, and full behind the ears.

The distinctive features of the grand divisions of mankind should be borne in mind by the student, for I shall have frequent occasion to refer to them.

We need not confine our investigations to the principal ethnological divisions of race for proofs of the connection between external appearance and internal quality, for all the subdivisions of man—nations, tribes, and clans—present abundant evidence of its truthfulness. In fact, these divi-

sions have been chiefly caused by psychonomical differences. "Birds of a feather flock together," says the adage, and this truism is equally applicable to man. The nations of Europe, for instance, present a remarkable difference in physiognomy and psychonomy. The polite gentility of the French, their love of glory and conquest, dashing bravery, but vacillating, airy disposition, contrast strongly with the stiff, independent manner, unyielding firmness and cool courage of the English. The constructive talent and inventive genius of these peoples are also characteristically different, which is in harmony with the contour of their heads. The French excel in quickness of perception, and their foreheads are most fully developed in the low part; the English are proverbial for comprehensiveness and depth of understanding, and they have a more square elevated brow, which is more full in the upper portion. The Germans have the most amply developed foreheads of the European family, and they are the most metaphysical and profound thinkers. The Jews, scattered over all parts of the civilized world, are distinct in character and physiognomy. But we need not travel over Europe to perceive the intimate relation between form and mental endowment. Striking examples are manifest among the English, Scotch, and Irish; nay, convincing evidence may be obtained from the members of our own families. There are not two persons in the world physiognomically alike, neither are there two individuals the exact counterpart of each other in talent and disposition.

Signs of character are looked for by the most casual observers in the face and forehead. The development of the forehead is commonly taken as an index to intellectual en-

dowment, a high brow of ample dimensions being associated with nobleness of mind, vigorous thought, and amiableness of disposition; whilst a very low retreating brow is coupled with meanness and lack of judgment.

> "His fair LARGE FRONT and eye sublime, declare
> Absolute rule."—*Milton.*

> "I will have none on't; we shall lose our time,
> And all be turned to barnacles or apes
> With foreheads VILLANOUSLY LOW."—*Shakespeare.*

A long forehead is invariably estimated as a sure sign of talent, depth of penetration, and great capacity for learning.

CHAPTER III.

DISCOVERY, RISE, AND PROGRESS OF PHRENOLOGY.

HAVING shown that the concomitance between physiognomy and psychonomy is universally recognized, and that the system of Lavater for estimating character is unreliable, whilst admitting its utility, I now proceed to notice the principles of phrenology, as briefly as is compatible with force of argument and clearness of exposition.

The history of the discovery, rise, and progress of phrenology must always be an interesting chapter to every lover of progress and triumph of truth. I shall not, however, risk wearying the reader by chronicling dry details, and unduly enlarging on this department.

Dr. Gall, a physician of Vienna, was born on the 9th of March, 1757, at Tiefenbrunn, in Suabia, and died in Paris, August 22, 1828. He is said to have manifested, in his infantile years, a remarkable aptness for observation and philosophic inquiry. He was characterized by industry, power of tracing causation, soundness of judgment, firmness of purpose, indomitable energy, self-reliance, and power of overcoming. The first fact that impressed his mind, and determined his course in his investigations of nature's operations, and which culminated in one of the grandest of modern discoveries, was one which had been commonly noticed in all periods in the history of man.

Measuring this circumstance by its results, we perceive the superiority and majesty of his mind. The fact to which I allude is the intellectual inequality of the human species. Christ had forcibly taught and lucidly illustrated the doctrine of inequality to his disciples in the parable of the talents, nearly 2000 years before it attracted the attention of the boy Gall, yet, it remained for the latter to bring it home to the minds and consciousness of his fellows, in all its potency. When a pupil, at the tender age of nine years, he was struck with the circumstance of some of his school-fellows having remarkable ability for learning words and remembering them, and the facility with which they expressed themselves; and he observed that they had prominent eyes. These two facts made a lasting impression on the young philosopher's mind, which was probably deepened by wounded ambition in being outrivalled in learning to repeat. He further observed that each individual was distinguished for some mental peculiarity, notwithstanding similarity of education and surroundings. Some of his school-companions excelled for beauty of penmanship, others for elegance of composition, while another lot had a stiff dry style; some quickly learned arithmetic, and others could not master the multiplication table. Some were remarkable for success in gaining a knowledge of natural history; some were unstable and discursive, and others constant, connected, and conclusive reasoners. He also found that they differed as greatly in disposition; some were peaceable, others quarrelsome; some modest and others arrogant. In their bird-nesting rambles in the woods, similar differences were manifested in finding their way back to any nest; some intuitively went to the

very spot, whilst others could hardly find their way home on a common road.

A few years after, Gall changed his residence, where he repeated his observations with like result; and his university experiences were of similar import. He found that all persons who had strong verbal memory had prominent eyes; and concluded that these facts had a necessary connection. After repeated observation and much reflection, he conceived that there might be external signs for other intellectual powers, and resolved to put nature to the test; and he was highly rewarded for his persevering energy by discovering signs indicative of talents for painting, for music, and for the constructive arts. Every person of unusually great or deficient mental endowment that came within the range of his knowledge, specially attracted his attention, and nothing short of an impossibility prevented him securing interviews and examinations. He got introduced to the courts of princes, to colleges and seats of justice. He visited prisons, schools, lunatic asylums, hospitals, and asylums for the deaf and dumb. "Many circumstances," says Dr. Spurzheim, "contributed from the beginning to favor the multiplication of proofs. Dr. Gall, living in a great city, professionally acquainted with many families, and physician to the director of the schools of Vienna, had many facilities afforded him of observing character in all situations and at all ages. Without children himself, he could spend his income on his favorite pursuits; and he was bold enough to address any person in whose head he observed any peculiar configuration." In fact, he submitted not to impediments. No difficulty, however stupendous, arrested his onward and up-

ward march after truth. Inscribed on his banner was the aspiring word, "Excelsior." Being guided in his physiognomical researches, up to this period, by the opinions of metaphysicians and prevailing mental systems of the day, he looked only for signs of memory, understanding, judgment, imagination, and will; never thinking that the organs of the affections existed in the brain. Becoming acquainted, however, with some individuals noted for decision of character, and observing in their heads a particular part largely developed, this coincidence suggested to his mind that the moral sentiments were probably manifested through the medium of the brain also, and he began to look for their signs. This procedure was accompanied with great difficulties, and cost him much serious reflection.

From the beginning of the history of mental philosophy, a diversity of opinion prevailed among physiologists and metaphysicians respecting the seat and qualities of the mind. Some believed the mind resided in the brain. Hippocates says, "From the *brain* only proceed pleasure and joy, and laughter and sport, as well as griefs, anxieties, sorrows, and weeping. By it we are wise and understand, and see and hear and appreciate. By it we distinguish what is pleasant and what is disagreeable, and by it the same things do not please us under all circumstances. By it we are insane and delirious, experience terrors and fears, partly by night and partly by day; do not recognize those who are with us; love our habits and forget our experience. All this we suffer from the brain if it is not healthy; wherefore, I say, that the brain is the messenger and interpreter of intelligence and wisdom." Pythagoras also pointed to the brain as the mind's

residence; but Aristotle located the sentient soul in the heart; Van Helmont, in the stomach; Buffon, in the diaphragm; Descartes and his followers, in the pineal gland; and Drelincourt in the cerebellum. A large number of philosophers believed that all men are born with equal mental faculties, and that education and accidental circumstances caused all subsequent differences. Dr. Gall, having proved the latter opinion erroneous, cast every prevailing notion respecting the seat and operation of the mind to the winds, and relying entirely on observation and induction, he minutely questioned nature, and accepted her answers as the only ones trustworthy; nor did she deceive him. He ultimately discovered the fundamental principles of phrenology and signs of the following mental powers:—Amativeness, Love of Young or Philoprogenitiveness, Attachment, Propensity to oppose or Combativeness, Propensity to injure or Destructiveness, Secretiveness, Acquisitiveness, Self-Esteem, Love of Approbation, Cautiousness, Educability (subsequently discovered by Spurzheim and the Edinburgh phrenologists to be compound, including Individuality and Eventuality), Locality, Form, Language, Color, Tune, Number, Constructiveness, Comparison, Causality, Wit, Ideality, Benevolence, Imitation, Veneration, Firmness, and Wonder. He also conceived it probable, that there existed an organ for the propensity to take food, another for Attachment to Life, and one for the sense of Order, and he conceived the sense of Time to be a fundamental faculty—all of which conceptions have been proved correct, and are now considered established, except Attachment to Life, and some phrenologists believe it to be established also.

Dr. Gall commenced a course of lectures on the physiology of the brain, in the year 1796. He had not, however, at this time examined its structure, but was convinced that physiology without anatomy was incomplete—that they must be in accord. Having subsequently observed a hydrocephalic patient manifest ordinary intellectual capacity, he concluded that the structure of the brain was different from what it was supposed to be ; he therefore began to investigate its nature with such ardour, that he created public alarm. "When I visited Germany," says Mr. George Combe, "I found people when dying were afraid lest Gall should obtain their skulls, and some left orders in their wills that means should be taken to prevent him." At the decease of any person who manifested any genius, idiocy, or other remarkable mental quality, he solicited with characteristic persistency the liberty of dissecting the brain ; but finding himself, in consequence of his extensive practice as a physician, unable to devote sufficient time to minute anatomical investigation, he employed a medical student for that purpose.

In 1800, John Gasper Spurzheim, a German, began to study under Dr. Gall, and became thoroughly imbued with his master's passion for the new science. He was wonderfully gifted, and had perceptive and analytical powers of the first order, which he applied to anatomical inquiries, and four years later he became Dr. Gall's associate.

Gall has been charged with having from his imagination mapped out the head into numerous divisions, and having assigned a mental quality to each. Never did the mother of slander give birth to a greater calumny. His procedure was purely inductive, and with all his enthusiasm he exercised

the utmost circumspection in forming conclusions. A period of thirty years intervened between the time when he first observed the concomitance of verbal memory and prominent eyes and the date of his first lecture on the physiology of the brain; during which time, he, at an immense cost, made thousands of physiognomical observations. His method was threefold, namely (1), To compare extraordinary talent with cranial configuration; (2), unusual development with mental characteristics; and (3), deficient development with mental manifestation. Thus both positive and negative evidence were duly estimated. The connection between deep sunken eyes and weak memory for words, afforded negative proof of prominent eyes being the outward signs of the internal power for learning to repeat. He found a *high crown*, and *firmness* and *decision of character*, to be a usual *concomitance;* also, that a vacillating, inconstant disposition was commonly associated with a low crown. His investigations of the brain, up to the time of Spurzheim first attending his lectures, were principally limited to its form. He compared the head with the skull, and the skull with the brain, and proved that their form corresponded, the one being moulded to the shape of the other. Dr. Spurzheim thus specifies the stage to which Dr. Gall at that time had arrived. "He spoke of the necessity of the brain to the manifestations of the mind, of the plurality of the mind's organs, and of the possibility of discovering the development of the brain by the configuration of the head. He pointed out several particular organs of different memories; but he had not yet begun to examine the structure of the brain."

The history of new discoveries is inseparable from the

chronicles of persecution. All advocates of new developments of truth have had to suffer in proportion to the value of their discoveries, and the courage and power with which they made them known. Professor Playfair says, "In every society, there are some who think themselves interested to maintain things in the condition wherein they have found them. Even in matters purely intellectual, and in which the abstract truth of arithmetic and geometry seem alone concerned, the prejudices, the selfishness, and the vanity of those who pursue them, not unfrequently combine to resist improvement, and often engage no inconsiderable degree of talent in drawing back instead of pushing forward the machine of science. The introduction of methods entirely new must often change the relative place of men engaged in scientific pursuits, and must oblige many, after descending from the station formerly occupied, to take a lower position in the scale of intellectual improvement. The enmity of such men, if they be not animated by a spirit of real candour and the love of truth, is likely to be directed against methods by which their vanity is mortified, and their importance lessened."

Dr. Gall did not escape the common lot of his class. The war-cry from the camp of envy and obstructive conclaves sounded to arms the hostile foe, and commanded an investment of the citadel of truth. Scorn, contumely, misrepresentation, and slanderous imputations—the ordinary bomb-shells of anti-progressionists, and would-be dictators of public opinion — were hurled like thunderbolts into the devoted garrison. Finding this mode of attack unavailing, and being determined to prosecute their evil designs, they moved the court to action, and the Emperor Francis I. consummated

their dirty work. He prohibited Dr. Gall from teaching his doctrines. Truth, however, is eternal and all-conquerable. It may be hid for a time by the rubbish of superstition, prejudice, and selfishness; but, as the wheat plant, which the chilling frosts and snow storms of winter have covered, is in due time brought to light in strength and beauty by the heat of the sun, so does truth rise above error in overpowering majesty.

Dr. Gall sent to the Emperor a temperate and eloquent remonstrance, wherein he lucidly set forth the value of his discoveries, and the injury that would be done to his character, social position, professional reputation and circumstances, should the edict not be revoked. His representations were unavailing; and no alternative was left him but either to forsake truth or fatherland. "I have," says he, "always had a consciousness of the dignity of my researches, and of the extended influence which my doctrines will hereafter exercise on all the branches of human knowledge." This consciousness, outweighing all other considerations, determined his choice.

Exiled from his country, he sought a home and an eligible sphere for his labors in Paris, accompanied by his faithful and intelligent pupil, Spurzheim. This memorable event took place in 1802.

Hitherto, anatomists had merely described the parts of the brain without regard to its functions. In their dissections they commenced at the top, removed the membranes, and cut down the cerebrum in horizontal slices, and gave names to the parts according to their appearances and form. Drs. Gall and Spurzheim being dissatisfied with this method,

struck out a new course. Always comparing structure with function, they began at the base of the brain, and examined the nerves and traced their origin, and the connections of the various parts, and gradually unfolded the brain by following the minute divergent fibres of the nervous bundles, until they were lost in the medullary substance, being too minute for observation with the unassisted eye. The convolutions, the cortical, and the membraneous envelopes were also thoroughly investigated. Thus a new era in branial dissection was ushered in.

Dr. Spurzheim appears to have sworn everlasting fealty to the new philosophy, and he devoted himself to the study and propagation of its principles. Dr. Gall and he labored incessantly together as partners until 1813, and published in their joint names a large and profusely illustrated work on the anatomy of the brain, respecting which Spurzheim says, "All the drawings were executed under my superintendence from anatomical preparations made and determined on by me; the engraver worked by my directions; no plate was sent to the press without my approval; the descriptions of the plates and the anatomical details are mine; and I furnished the literary notices in regard to the nerves of the abdominal thorax, to those of the cerebral column, of the five senses, of the cerebellum, and of the brain."

In 1813, Gall and Spurzheim separated, each following his own course. The latter travelled over Europe, and introduced phrenology into Britain; he crossed the Atlantic with the glad tidings in 1832, but died two months after landing. Four years previous to this eventful period, Gall had preceded him into the land of eternal rest.

Notwithstanding the apostle's lamp of life was so soon extinguished after his arrival on the American continent, it had shone with such brilliancy and irresistible power, that its reflection continues to this day, and doubtless will continue to the end of time. He was eminently qualified for analysis and generalization, and contributed largely to the perfecting, as well as the general advancement, of the science. His urbanity, wisdom, profound knowledge, and complete mastery of phrenological details, impressed all minds with whom he came in contact. His distinguished zeal, ceaseless labors and courageous advocacy of phrenology, left an indelible impress on the European mind. He discovered the organs or the outward signs of Conscientiousness, Hope, Size, Weight, Order, and Time, and proved Gall's organ of Educability to comprise Individuality and Eventuality, and he was the first to apply the doctrines of phrenology to education, and the treatment of the insane.

Not the least of Spurzheim's achievements was the conversion of Mr. George Combe to his doctrines. Mr. Combe's mind had undergone an excellent course of preparatory training for the reception of phrenological truth. Naturally he had good observant powers, and a clear, discriminative, logical mind, which had been highly cultivated by education and the acquisition of general knowledge. By profession a lawyer, and having studied the mental philosophy of the schools, and also anatomy and physiology, he was well able to form a correct judgment of the truthfulness and value of phrenology. He attended Dr. Spurzheim's lectures in Edinburgh, and witnessed his demonstrations of the structure of the brain, and was delighted with them, and forcibly con-

vinced of their truthfulness and utility. After mature consideration he declared for the new philosophy, bringing all the powers of his mind to bear upon the subject and the propagation of its principles, and soon became, by common consent, its acknowledged leader. On him rested the mantle in its fall from Spurzheim's shoulders, and with noble mein he wore it. He was essentially a humanitarian—his aim in life was the intellectual and moral elevation of his race. The means he employed in the attainment of this object was the advocacy of self-knowledge, the utilization of science and art for the common-weal—to do unto others even as he would they should do unto him—to make the best of this world, as a means of qualification for enjoying the world to come. To his labors the world is greatly indebted. He left to posterity a munificent heritage of sound principles, practical wisdom, and philosophic teachings. His voluminous writings are a lasting monument to the nobility of his mind, and shed a radiant lustre around his memory.

Six years after Dr. Spurzheim's death, Mr. Combe visited America, and delivered a lengthy course of lectures, extending over nearly two years, in some of the principal states and cities. He was well received, and his visit was hailed as an eventful period in the history of the country. His writings are highly prized in America, the circulation of his "Constitution of Man," in that country alone, being upwards of four hundred thousand.

CHAPTER IV.

THE BRAIN THE ORGAN OF THE MIND.

THE characteristics of mind are Sensation, Volition, Perception, and Reflection—that is, it can feel, act and think. These qualities are manifested through the medium of the physical organism, and it is only in this way that anything is known of mind. During the mind's earthly pilgrimage it is said to inhabit the body as its tenement, but its exact seat has for ages been a matter of speculation by philosophers and physiologists. Some assigned it to the brain; others thought the intellect only resided in that organ, and the sentient property in the stomach; some again referred the feelings to the liver; and others to the heart. The extent to which the latter opinion prevailed strikingly appears in our language. The head and heart are common terms in use expressive of the intellect and feelings. Persons are said to be "all right in the head, but wrong in the heart;" and good, bad, tender, and obdurate hearts are commonly spoken of. It is almost superfluous to add that these opinions have given place to fact, and are consigned to the limbo of worn-out theories. The only function of the heart is to circulate the blood, that of the liver to secrete bile, and that of the stomach to digest food.

Throughout the realm of nature we do not find any manifestation of mind where no brain exists, or nervous ganglion

—which is the rudimentary form of a brain—as found in the lowest grade of animals; and we find that, as the brain improves in development, and parts are added to the structure, the mental faculties increase, and the animal rises in the scale of being, from the radiata, articulata, molusca, and vertebrata classes, until we arrive at man, whose brain is the most complex and highly developed, and the range of whose intellect is almost boundless.

The warmest glow of tender emotion, the noblest aspiration, the loftiest flights of fancy, and the most brilliant display of genius and wrapt devotion, are manifested through the brain's mediumship. When nature is dressed in her loveliest attire, and poesy in admiration takes the wing, surveys, adorns and beautifies the scene in thrilling words of grandeur, elegance, and refinement, she does so by means of the brain. And it is through the same medium that the bard inspires with music and song. So the man of science, when he explores the bowels of the earth, and commands her to yield up her hidden treasures; when he scans the heavens, measures the distances, magnitudes, and far-sweeping orbits of the planets; makes the lightning his messenger and the sun to paint his portrait; he is, with all his power over nature's forces, dependent on the brain for its exercise.

Disturbance of the functions of the brain affects the mental manifestations. Apoplexy is caused by a sudden increase of blood in that organ. Acute inflammation exalts the feelings and intellect, partially or generally, according to its extent, and to the part affected, and frequently causes delirium. Insanity arises from change of brain structure, and from functional exaltation and depression. Certain sub-

stances taken into the system—such as opium, henbane, or alcohol—disturb the mental manifestations by affecting the brain. Softening of the brain often ensues after too much thought, bereavements, disappointments, or other modes of persistent mental activity, and unconsciousness is frequently produced by blows on the head.

In perfect sleep the mind's operations are suspended—no sensation, volition, or thought takes place. This would not be the case if the heart, as some suppose, were the seat of sensation, for it continues to perform its functions during sleep. Again, the sensory system may be active when the heart is diseased; and, when the condition of the heart affects the mind, it does so sympathetically. Compression of the brain suspends sensation and consciousness. Numerous cases in illustration of this are on record, from which the following are cited:—Sir Astley Cooper relates the case of a sailor who fell from the yard-arm of one of H.M. ships as she was about to sail from Gibraltar. Total insensibility ensued, and during the voyage he had to be fed, and otherwise attended to like an infant. He remained at Gibraltar a month under medical treatment without benefit. He arrived in England thirteen months after the accident, and was carried to St. Thomas's Hospital, London. The eminent surgeon, Mr. Cline, perceiving a portion of the skull depressed, and attributing the symptoms to this circumstance, raised it up, which was no sooner done than the patient's consciousness returned, he sat up and gazed around, and in a short time after began to speak. The whole time which had elapsed, from his sustaining the injury until relieved by Mr. Cline, was a blank in his life. He was quite oblivious of all that had transpired,

and thought the ship was just going to sail from Gibraltar, which was the last impression made on his mind.

Richerand, in his "Elements of Physiology," gives the following:—"A woman about fifty years of age had an extensive carious affection of the skull; the left parietal bone was destroyed in the greatest part of its extent, and left uncovered a considerable portion of the *dura mater*, and I at the same time questioned the patient on her situation. As she felt no pain from the compression of the cerebral mass, I pressed down lightly the pledget of the lint, and, on a sudden, the patient, who was answering my questions rationally, stopped in the midst of a sentence, but she breathed, and her pulse continued to beat. I withdrew the pledget: she said nothing. I asked her if she remembered my last question. She said she did not. Seeing that the experiment was without pain or danger, I repeated it three times, and thrice I suspended all feeling and all intellect." "M. Bonnesseous relates the case of a man, who, two years and eight months before he saw him, had been attacked and wounded in the head by an assassin. He suffered much in his head, and had become almost idiotic. On examining the head, Bonnesseous found, just above the left ear, a resisting tumor about the size of a bean. Pressure on this gave great pain, and aggravated the cerebral symptoms. Cutting into the tumor, the blade of a poniard-knife was extracted. A probe carried into the track whence the knife had been extracted, passed quite horizontally, so that no doubt could remain that this blade had been buried within the cerebral mass for two years and eight months. The patient went on well and recovered his mental energies."—*Medical Times and Gazette*, Sept. 1861.

Many cases of injury to the substance of the brain are said to have taken place without affecting the intellect, and therefore, say some, it cannot be the exclusive organ of the mind. A surgeon informed me that he had known an instance of an iron bar, about a half-inch in diameter, having penetrated about two inches into the brain of a man, without destroying his consciousness. This and similar cases do not disprove that the brain is the organ of the mind, but are arguments in favor of its duality, and that each hemisphere is constituted of a number of parts or organs, whose functions are to manifest distinct mental faculties.

Dr. Spurzheim says, "We observe, in all reports upon wounds of the head and injuries of the brain, the following very loose expressions :—The patient continued to walk, to eat, and drink; he had his consciousness entire, namely—he knew all around him; he manifested some memory and judgment; consequently, he possessed all the faculties of the mind —none of them were disturbed. If, however, a person of a mild and peaceable character, after being wounded on the head by a stone, become quarrelsome and morose; and if another, whose life had ever been irreproachable, after a similar accident, began to feel an irresistible inclination to steal, it is evident that, though these persons preserve consciousness, memory, judgment, and imagination, we cannot infer, that the injuries inflicted have produced no derangement of the mental functions. Further, animals have consciousness, memory and judgment; but are they therefore men? If a man were by disease reduced, in point of faculties, to the level of a dog, but still enjoyed the five external senses, as well as some portion of memory and judgment, are all the

faculties of the mind manifested? If, in cases of partial insanity, consciousness, memory, and judgment be preserved, and if imagination be even exalted, are all the faculties unimpaired? Finally, if individuals after a concussion of the brain, or a fit of apoplexy, lose the memory of proper names, or of languages, though they preserve the functions of the five senses, memory, and judgment, have they lost nothing whatever?" It is evident, that the manifestation of one or more faculties of the mind may be deranged or destroyed, and the patient still be incorrectly said to preserve all the powers which constitute an intellectual and moral being. It follows, also, that hitherto it has been impossible to judge accurately of the effects of disease and injuries of the brain, because physiologists have considered the general attributes of the understanding only, and have been ignorant of the special faculties. From what has been said, it appears that injuries of the brain must be investigated under the guidance of sounder ideas of the healthy structure and function of that organ, before safe and useful conclusions can be come to in regard to mental aberration."

"I will not insult the understanding of my readers," says Dr. Elliotson, "by showing that we have no authentic instance of the real absence of brain in the cranium of a being possessed of mind. In most cases where the mind is *said* to have been vigorous, when the state of the body at large, or of the brain alone, rendered the perfect performance of the cerebral functions improbable, in the eyes of the relators, I believe the mental power has been greatly overrated; that because the individual talked collectedly, he was imagined sufficient for the exertions of his best health.

"The part of the brain affected by disease may have been one whose function is not intellectual, but merely relating to the feelings, or may have been related to mental faculties whose state was not noticed by the narrators. In truth, the narrators give us no satisfactory account of the feelings and intellectual powers of the patient, nor of the exact portions of the brain affected; nor could they, being unacquainted with Phrenology; and they also forget that the cerebral organs are double."—*Human Physiology*, 5th edition, p. 37.

Philosophers have always ascribed to mind a plurality of faculties, but have differed in opinion as to their number and nomenclature. They define the faculties by such terms as the *flesh* and the *spirit*, and *understanding* and *will*, indicating the two distinct natures of man—that common to man and animals, and that peculiar to man. The Understanding is divided into *perception*, *memory*, *judgment*, and *imagination;* the Will into *inclinations*, *affections*, and *passions*.

The doctrine of the plurality of mental powers is very ancient, and upon this point the disciples of Gall and those of the schools are in strict accord; but they differ materially as to the number. Which are right? This is the proposition to be discussed. It cannot be settled by theorizing, nor by such acrimonious dogmatism as that manifested by Professor Blakey. He remarks, "According to the general doctrine of phrenology, *memory*, *reasoning*, and *judgment* are not distinct and independent faculties; but every organ has its own mode or power of remembering, reasoning, and judging. Now here there is, so to speak, a constellation of perplexities and obscurities. There is no theory of mind with which we are acquainted so redolent of absurdity and contradiction as

this. We stand aghast at the amount of public credulity on the one hand, and philosophical charlatanism on the other, which could attempt to foist a system of this kind upon a thinking and reflective people." And, again, (p. 606,) he says, "Were there not a system of intellectual science already in existence, derived from the *individual consciousness* alone, the organs of the phrenologists could never have been made to indicate anything about the mind or character of man; so that, when it is referred back to its own intrinsic merits, it cannot furnish a single idea upon the subject of which it professes to treat. It is a beggarly conception of unmeaning words and crude conceptions."—*History of the Philosophy of Mind*, vol. iv., pp. 593, 4.

The mental systems of the schools are "derived from individual consciousness alone." Professor D. Stewart says, "As all our knowledge of the *material* world rests ultimately on facts ascertained by *observation*, so all our knowledge of the *human mind* rests ultimately on facts, for which we have the evidence of consciousness."—*Outlines of Moral Philosophy*. In reference to the course he pursued in the study of mind, he remarks, "I have accordingly, in my inquiries, aimed at nothing more than to ascertain, in the first place, the laws of our constitution, *as far as they can be discovered by* ATTENTION TO THE SUBJECTS OF OUR CONSCIOUSNESS, *and afterwards to apply these laws as principles*, for the synthetical explanation of the more complicated phenomena of the understanding."—*Essay*, p. 2.

Dr. Gall's system, on the contrary, is derived from observation, experience, and induction. Mark well the great difference of these sources. A philosopher stands upon an

eminence, and viewing the wide expanse before him, particularly notes the effect each object produces upon his mind, and the order of their succession. Particular objects impress his mind strongly, and he remembers those impressions, or the ideas they excite, so as to be able to recall them. Certain sounds and smells give pleasure or annoyance, and he handles substances, and receives certain notions concerning them, as softness, hardness, roundness, squareness, lightness, heaviness, largeness, and smallness, and concludes that other persons would be affected in like manner, if they viewed the same scene, smelt the same smells, handled the same substances, under similar conditions. He thus sets himself up as a mental standard. Now, in doing this, it remains for him to prove that the mental organism of those who are to be measured by his standard is essentially the same as his own, for, if a difference is admitted to exist, a difference of mental perception must necessarily follow. We have seen that great differences do exist, and to such an extent, that there are not two persons exactly alike; hence the experience of no one can be thoroughly appreciated by another, nor can it be accepted as a perfect guide or rule of action. The idea, therefore, of a mental standard is an invention of the fancy, and judgments based upon such standards are fallacious. Metaphysicians admit that size and quality of brain greatly influence the mental manifestations; but, with these exceptions, they assert that individual differences are caused by education and accidental circumstances. Phrenologists, however, affirm that great individual differences exist naturally, and continue to manifest themselves through life, notwithstanding similarity of size and quality of brain, of education

and surroundings. How is this disputed point to be settled? By an impartial appeal to nature. This is the only reliable test, and happily it is at the command of every diligent student. Phrenologists ask not a blind acceptance of their doctrines, but forcibly urge the necessity of observation and induction, and careful examinations of the facts from which they are deduced.

Supposing a number of persons—for example, six brothers—who have been educated alike, and reared under the same influences, were to survey a landscape from the same point of view, under precisely similar conditions, and afterwards they were each to write a descriptive account of the scene, there would not, in all probability, be two of the descriptions alike, either in matter or style. One of the brothers would probably dwell especially on the outspread lawn, and rippling streams, sunshine, waving trees, and the cooling softness of the zephyr breeze; another on the richness of the birds' plumage, on the variety of the flowers and the harmony of their variegated hues; the third might enlarge on the gambols of the lambs and the tender affection of their dams, perhaps the calf and foal and sucking pig would be pathetically described; a fourth might express the rapturous pleasure he felt in listening to the melodious voices of the feathered songsters; and the fifth dilate on the architectural beauty of the castle and villa mansions; whilst the bounding cascade, the precipitous rocks, and the rugged pass, might inspire the sixth with sublime musings. Similar differences would be displayed in visiting a museum, or in whatever position in life they chanced to be placed.

In a paper read by Andrew Combe, M.D., to the Medi-

cal Society of Edinburgh, November 1823, he says, "We are told, indeed, by some authors, such as Mr. Stewart, that 'a genius for poetry, for painting, for music, or for mathematics, is gradually formed by particular habits of study or of business; and that invention in the arts and sciences is the result of acquired habits, aided by favorable circumstances, and not the original gift of nature.' But, if we consult a yet higher authority than Mr. Stewart—namely, Nature herself, we find these opinions contradicted by facts: for genius most frequently appears at such an early age as to put habits of study or cultivation as a producing cause entirely out of the question. We are told, for instance, at three years of age, Mozart's great amusement was in finding out concords on the piano; that nothing could equal his delight at discovering an harmonious interval; and that, before six, he had invented several pieces of some extent and intricacy. We are also informed that Haydn distinguished himself before the age of twelve; that Handel, before the age of fourteen, produced an opera which had a run of thirty successive nights; and that, so far from his habits of study being the result of great cultivation, they were formed in the retirement of a garret, and in spite of every species of discouragement. Miss Paton, too, who in her late visit to Edinburgh afforded so much delight, was remarkable as a performer at the age of eight.

"Among the poets, again, the same early appearance of genius occurs where cultivation could not possibly have had time to operate. Dr. Johnson, in his 'Lives of the Poets,' tells us that Cowley, Milton, and Pope 'might be said to lisp in numbers, and to have given such early proofs, not only of

powers of language, but of comprehensiveness of things, as to more tardy minds seem scarcely credible.' Cowley, for instance, wrote a tragedy in his tenth year. Miss Clara Fisher, also, in her seventh year, manifested amazing powers of comprehension and of dramatic talent; and yet, so little were her parents aware of any laborious studies on her part, that they simply affirm, that these talents appeared all at once after seeing a play. Mr. George Bidder, when still a child, manifested his prodigious calculating powers, and invented rules for himself, which his teachers could never discover, and which, consequently, he could not have derived from them. Again, turning our attention to invention in the arts and sciences, which we are told is *not a gift of nature*, but the *result of acquired habits, aided by favorable circumstances*, equally contradictory instances occur.

"During my residence in Paris, I had the pleasure of knowing intimately a man remarkable for his powers of invention in music and in mechanics, and who had raised himself to riches by the exercise of these powers. I was at that time studying phrenology, and looking about for information. I therefore eagerly embraced the opportunity of asking him, whose house was filled with the result of his own inventions, by what habits of study he had formed his genius, and what favorable circumstances had aided him in his career of excellence. He gratified my curiosity, and gave me a history of his life, which seemed, however, to prove that in this case, as in the others, his genius had formed his habits, instead of his habits forming his genius. Instead of being encouraged to follow those occupations in which he was ultimately so successful, he pursued them in

the face of opposition from his relatives, so violent as to make him leave his father's house. He was never happy when not exercising his inventive powers."

That the brain is an aggregate of organs is proved from such considerations as the following.

First.—The difference of the sexes. The unlikeness of the disposition of the sexes, as manifested from infancy, is proverbial. See that little cherub of a girl, with her soft blue eyes and ruby lips, and her auburn ringlets hanging over her beautifully modelled shoulders, how tenderly she nurses her doll, presses it to her bosom and sings it to sleep, places it in the cradle and rocks it; and then again, as though some noise had disturbed its slumber, bends over the cradle like a guardian angel, and soothes it with a lullaby, and continues to anxiously watch it until the time arrives for it to be taken up. Behold her again how gently she performs its toilet; and flatteringly promises it the indulgence of an airing out for being so good while getting dressed. She must not only act the part of mamma and nurse, but lady's maid also; and muslin and calico and ribbons, and needles and thread, and scissors, are all in request. How differently her little brother acts. Hear him: "O papa, I would like so much a box of tools, a hammer, and a saw, you know," and with fascinating archness asks, "Wont you buy me a box?" Of course papa does; and our little hero commences to develop his constructive talent. What is the cause of this difference? It is certainly not education, nor accidental circumstances. A casual observation of the heads of the sexes in profile shows their conformation to be very unlike. The female head, backwards from the ear, is longer than the male in the direc-

tion of the organs of Philoprogenitiveness and Adhesiveness. The natural and logical inference therefore is, that there is a connection between this fact and the characteristic traits.

Second.—Genius is partial. Though the poet on pinions stretched mounts high in the region of fancy, peoples the world with new creations, and captivates with his graphically word-painted pictures—now with melting pathos harrows up the feelings, and damps the cheek with dew from the well-spring of affection, then causes the heart to pulsate, and the life-current to boil with indignation in depicting the iron-hand of oppression; again, enchanting with beauty, or with upheavings and conflicts, and tumultuous warring of elements, filling the soul with inspirations of awe; and, anon, sending a glow through the domestic feelings by the scene of the "Cottar's Saturday Night," or spell-binding with emotions of chivalrous exploits, adventures, love and noble sentiment—though he may play on the varied feelings and passions at pleasure, and to any degree of intensity; bring him down to earth again, and we would find him to be a mere specimen of imperfection, and probably an ordinary man in the practical affairs of life.

Genius, like the light of truth, is difficult to extinguish. It rises superior to the most adverse conditions, and conquers all difficulties. George Stephenson, without education, wealth, or other aid but native genius, rose from the humblest ranks of life to high pre-eminence, and earned undying fame. Railways will probably last as long as time endures, and George Stephenson's name will ever be associated with their rise and development. The genius of Robert Burns, the Ayrshire ploughman, though overshaded by the cloud of

adversity, rose in brilliancy and power, and even now shines with refulgent splendor as a planet of the first magnitude in the poets' firmament. Yet the genius of these men was only partial; each moved in his own sphere. Stephenson could never have taken the place of Burns, nor Burns that of Stephenson. Elihu Burritt, during irksome toil in the smithy, became learned in literature and science, casting light into the gross darkness of ignorance, selfishness, and brute force, with "Sparks from the Anvil," while his "Olive Leaves of Peace" were a terror to evil-doers. But though he has mastered an almost fabulous number of languages, the mantle of poesy never adorned his shoulders, nor is he endowed with inventive power. Even Shakespeare, with his unparallelled versatility of mind, was far from being an universal genius.

Some persons excel in music, but do not attain mediocrity in arithmetic; others outrival in the latter, and are only poor musicians; while some excellent mathematicians are very bad logicians. Discrimination and sound judgment are not always possessed by one person.

I visited Montrose in the autumn of 1863, and was pleased in having the opportunity of examining the head of the late Alexander Miller, the Montrose calculator. He was introduced to me by a gentleman as a remarkable case of special genius, and a rare phrenological specimen. He was a poor orphan, fourteen years of age, and seriously afflicted with epileptic fits, and too debilitated to earn a livelihood. He had a highly nervous temperament. His head was large, and his brain apparently of a very fine quality; but his chest was narrow, and his abdoman small,

and his nutritive, breathing, and recuperative powers were consequently considerably below the healthy standpoint. His muscles were thin, flabby, and inelastic, and his nervous system was much out of tone.

I looked at him with mingled feelings of wonder, admiration, and pity. The quickness with which he solved arithmetical problems mentally was most astonishing. He was truly a prodigy. But I saw the finger of death was upon him. Nature appeared to have only put him forth as a specimen of her wonderful resources, to be shown in mortality's exhibition for a short period, previous to his removal to the immortal spheres.

The gentleman who introduced him to me said, "Alexander can tell you, Mr. Morgan, in half-a-minute, how many seconds you have lived, if you inform him when you were born." I did so; and, in the short space of twenty-five seconds, this remarkable boy, in the most deliberate manner, enumerated the figures which he found as being the number of seconds of my lifetime, which were proved to be correct, due allowance being made for the leap-years. After repeated trials of this kind of his powers, I put a question to him something like the following. Supposing a railway waggon to be 12 feet long, 7 feet 4 inches broad, and 3 feet 2 inches high, how many barley-corns would it hold, reckoning twenty-seven to the cubic inch? He gave the correct answer in thirty-one seconds. He solved another problem much more difficult than these in an almost incredible short time, and he only assisted his memory by the use of a pencil in one case.

I asked him by what process he managed to find results

so rapidly? He replied, "I dinna ken; I just think, and the answer comes into my head!" "But," I remarked, "you will apply certain rules to shorten the work?" He answered in the affirmative. But all I could elicit as to their nature and application was, "the answer comes into my head." I learned that his arithmetical talent was early developed, and that at the age of eight years he outrivalled all competitors in calculating, and had from that time carried off several prizes, although he was not remarkable for any other intellectual trait; and, it was quite obvious to me, that even his organ of number was in a very morbid state of activity, and that, unless it could be subdued, and a healthy balance of mental powers brought about, his brain would soon exhaust its energies. He was constantly calculating, or otherwise exercising this faculty by day, and by night in dreams. He died about nine months after my interview with him.

The inborn native genius, that caused the infant Mozart to linger at the piano, and when his tiny fingers struck an harmonious interval, lighted up his countenance with a radiant lustre of unutterable joy, and which ultimately immortalized the name of its possessor, *was*, with all its exquisitiveness of taste and sense of harmony, *only partial.* So, also, was Handel's genius partial. Music was its chief outlet. Whilst sheltered in a garret, from the chilling influence of parental discouragement, it ignited, and burst into a flame of unusual brilliancy, and was so strongly reflected from the walls of this humble study, that the coruscations continue to be thrown off from object to object, and from mind to mind, lightening up the latent genius of thousands, and fascinating all by their charms.

Third.— Idiocy supplies abundant evidence of a plurality of faculties. Partial idiots are numerous, but complete idiocy is rare. Between the dark, deep valley of mental degradation, and the alpine heights of genius, there are many gradations, both in the intellectual and affective faculties; but the law only recognizes idiocy of the intellect. If a person manifest sufficient intelligence to understand right and wrong, he is held to be responsible for his actions, and amenable to law. This is a very incomplete standard by which to measure man's responsibility; because weakness of the intellect is invariably partial—that is, an individual may be idiotic in one or a number of faculties, and sane in the others. He may also be vigorous in intellect, and idiotic in sentiment—having no moral feeling in accordance with his intellectual perceptions. Of the latter class, Drs. Palmer and Pritchard, the notorious poisoners, were striking examples; their faculty of conscientiousness, which gives a perception of justice and equity, duty and obligation, was so small, that they were idiotic in this sentiment. Dove, the poisoner, who expiated his offences on the gallows at York, was idiotic in the reflective faculties, and was consequently incapable of forming correct judgments, though his knowing powers were well developed. Were there no other cases on record than these cited, they prove incontestably that idiocy is partial; but, unfortunately, the class which comes under this head is exceedingly numerous. The brain is, therefore, not an unit; for, if it were, every faculty would be equally weak or equally strong. Even George Combe, with all his knowledge and superior understanding, was almost idiotic in the faculty of number, and had to employ clerks to perform

ordinary calculations, though he was quite conversant with the rules of arithmetic. Many cases of color-blindness are reported. I was personally acquainted with a gentleman of remarkable general ability and good taste, who could only distinguish two or three of the strongest colors. Some persons, too, are very clamorous for religious observances, but neglect the weightier matters of justice and charity; whilst others practise the latter, and repudiate the former as unnecessary.

Fourth.—If the brain were only one organ, the mental faculties would all appear and disappear at the same time, which is not the case. The cerebellum, or little brain, which is the organ of the amative propensity, is at birth very small in proportion to the cerebrum, being as one to thirteen or fifteen; but at maturity the proportions of these parts to each other are very different. The size of the cerebellum is then as one to six or seven of the cerebrum, showing the former to have materially outgrown the latter. In the decline of life some faculties are generally found to decay earlier than the rest.

Fifth.—Mental alienation seldom pervades the whole mind, as compared to cases where only one or more faculties are affected with insanity. This fact is so well known and so generally admitted, that to adduce cases in illustration appears unnecessary. Any person, desiring ocular demonstration of this fact, can be satisfied by visiting a lunatic asylum, which I recommend doubters to do. It is painful, but very interesting, to mental students to witness the various phases of mind manifested through the medium of diseased brains. But it is not absolutely necessary to visit an asylum

to see mental aberration. This may be done in the hospital, and frequently in the sick-room—nay, in our streets persons may occasionally be seen transacting the ordinary routine of business, and at home performing all their domestic duties, and yet be partially demented. Hypochondriacs and monomaniacs afford numerous examples.

Dr. Spurzheim says: "Derangement of the feelings are numerous. Hunger and thirst may be diminished to inactivity. Some are indeed voracious, and languish even to fainting from want or deficiency of nourishment. The most modest young females are sometimes seized with the feeling, countenance, and language of a loose libertine. I have seen several who fancied themselves pregnant."

Pinal says: "I have nowhere met, except in romances, with fonder husbands, more affectionate parents, more pure and exalted patriots, than in lunatic asylums." Again, he remarks, "I could mention several instances of insane persons of known integrity and honesty during their intervals of calmness, who had an irresistible propensity to steal, upon the accession of their maniacal paroxysms."

Dr. Hallaran states: "I have often known maniacs of the worst class, in whom the faculty of thinking correctly on all other subjects had been entirely suspended, still retain the power of addressing the Deity in a consistent and fervent manner."

Dr. Rush says: "Talents for elocution, poetry, music and painting, and uncommon ingenuity in several of the mechanical arts, are often evolved in madness.—A gentleman whom I attended in our hospital, in the year 1810, often delighted and astonished the patients and officers of the

hospital, by his display of oratory, in preaching from a table in the hospital yard every Sunday.—A female patient of mine, who became insane after parturition, in the year 1807, sang hymns and songs of her own composition, during the latter stage of her illness, with a tone of voice so soft and pleasant, that I hung upon it with delight every time I visited her. She never had discovered a talent for poetry, nor music, in any previous part of her life.—Two instances of talent for drawing, evolved by madness, have occurred within my knowledge; and where is the hospital for mad people, in which elegant and completely rigged ships, and curious pieces of machinery, have not been exhibited by persons who never discovered the least turn for mechanical art previous to their derangement? Sometimes we observe in mad people an unexpected resuscitation of knowledge; hence, we hear them describe past events, and repeat long and interesting passages from books, none of which, we are sure, they were capable of recollecting in the natural and healthy state of their minds."—*Observations on the Derangement of the Mind*, pp. 81–87.

Sixth.—Dreaming can only be explained by a plurality of mental powers, for it is the result of mental activity. In perfect sleep the brain is in a state of torpor, during which time the mind neither feels, acts, nor thinks; but, in dreaming, mental manifestations take place, and sometimes of a very animated character, in consequence of some of the faculties becoming vigilant, while the others continue to repose. Dreaming is the state of being partly awake and partly asleep, at the same instant of time.

If the brain were a single organ, the mental powers would

all feel fatigued and be refreshed together, but the very opposite results ensue. Persistent mental effort in one direction wearies the faculties engaged, and rest is found in change of subject. Not unfrequently is the system enfeebled, and severe nervous prostration produced, by concentrated application in one line of thought, and tone and energy are recovered by change of topic. The health of students is maintained and protected from premature exhaustion by the diversified nature of their studies, bringing into operation the whole of the intellectual faculties in succession, and allowing those exercised regular intervals of rest. It is on this principle that religious exercises are beneficial to health. That the daily and habitual practice of pure religion is conducive to health, is a fact patent to all correct observers, and which did not escape the notice of the Rev. John Wesley. He draws special attention to the renovating influences of religion on the physical system in his "Primitive Physic."

The characteristic peculiarities of persons arise from the plurality of mental powers. There is no other way of accounting for the unlimited mental diversity of the human species. The division of society into nations, tribes, castes and clans, and the interminable number of parties, rest on the same basis; so does the variety of tastes and inclinations in literature, science and art, politics and religion.

"Birds of a feather flock together."

An intimate and confidential friend of mine has had some unusual experiences that are apposite to the subject under consideration, and well worthy of being recorded. I may state that he has undergone a phrenological examination by six

professors of the art, and all pronounce him a lover of truth, and to be thoroughly reliable. They also attribute to him acuteness of mental perception and analytical ability. Many years ago, studious habits and pressure of business gradually undermined his health, and ultimately laid him prostrate; he was so much reduced in physical and mental stamina, that he could not listen attentively to conversation for five minutes without becoming almost exhausted, and the tick of a watch painfully affected his sensitive brain. Continuous thinking on scientific subjects had morbidly excited some of his mental organs, producing a peculiar smarting sensation, accompanied with external inflammation around their seat in the forehead, and a heaviness over the eyebrows, which gave a frowning expression to the countenance. Nervous dyspepsia, and a host of its cruel attendants, tormented him as evil genii; and motive power from the respiratory muscles was frequently and suddenly abstracted, as though his suffocation were bent on. He was so weak that he could not sit in an erect posture, nor bear his head up without some support; yet, he longed for knowledge as an insatiable gourmand longs for food. His medical attendants ordered him to keep his mind easy! and, that all books, pens, ink and paper, were to be kept from him. Excellent advice certainly, but much more easily given than put in practice. His nurse strictly carried out the latter part of the instructions; but, as to the former, while he felt the absolute necessity of mental rest, its attainment was apparently beyond his reach. He was almost as powerless to arrest the erratic movements of his mind as he would have been to stop the progress of an avalanche; and when,

perchance, he did succeed in partially restraining the impetuosity of the excited faculties during the day, they broke loose from the grasp of Morpheus at night, and revelled in the most fanciful creations of dreamland. If the doctors expected to remove all food for thought with the removal of books, they miscalculated. No food for thought! It is a barren spot that contains no aliment for a hungry mind. My friend's couch as it yielded beneath him suggested numerous thoughts. The carpet on the floor summoned before his vision sheep and shepherds, curriers and dyers, spinners and weavers, wholesale merchants and retail dealers. The mew of the cat, the barking of the dog, the crowing of the cock, and the sparrow's chirp, immersed him at once in zoology. The sun could not peep through the thick window-blind which darkened his chamber, but his mind must instantly soar up among the planets and the twinkling stars. The sucking of a pear-drop sent him off in an excursion among orchards; and the picturesque beauties of creation were visibly brought before his mind's eye in panoramic view, on observing the flowers on the paper, with which the walls of his room were hung; and thus every object in nature and art, that came within the range of his senses, supplied material for contemplation, and gained his attention. Though extremely prostrate, and confined in a room by himself, he was happy. No nervous fears disturbed him, nor did he brood over his troubles, except to understand their nature, and discover a remedy. Thinking occasionally, for very short periods, on the peculiarity of his case, he concluded that the mental faculties, which had been especially exercised during his previous studies, were debilitated with over-exertion, and

were also morbidly excited, and that the desideratum was to relieve them, by bringing into action the dormant faculties. This he judged would satisfy the craving of his mind, and give the weakened organs rest. He had not hitherto given any attention to music, and consequently his musical faculties had not been exercised, and he thought that, if by any means they could be roused into activity, they ought to be. Being naturally decided and self-reliant, he begged from his nurse a sheet of paper, and, while lying on his back, scrawled with pencil an order for an accordion, which was promptly executed. Not having sufficient strength to sit erect, he commenced his musical studies in a reclining posture. Mark the result. In the short space of two days, he could sit up for several hours at a time, and in a day or two more, could walk a little, and soon was able to take short walks in the open air. I may state, however, that though his attempting to play on the accordion acted as a charm in renovating his health, listening to other performers produced opposite results.

When his health failed he was removed into a salubrious part of the country, and placed under the care of a very kind and attentive nurse, where he remained until a fortnight after receiving the accordion, at which time he was sufficiently recovered to bear the fatigue of being conveyed home, where he had an interview with his medical advisers. From the commencement of his illness, the appearance of visitors had had a peculiar effect upon him, unstringing his nervous system with telegraphic rapidity, and causing symptoms of a very painful nature ; consequently, friendly visits and calls of all kinds were interdicted. Notwithstanding his

great improvement in strength, the presence of the doctors instantaneously reproduced a very alarming attack of the old symptoms, which it is unnecessary to describe further than to state, that the medical gentlemen were present with him one hour and a half before he could speak, or they could proceed with an examination. Being informed that music had a beneficial effect upon him, they suggested a trial at the accordion, but his fingers had lost the power to manipulate. Nevertheless his feeble attempt to play a tune effected a rapid lowering of his pulse, and after a few minutes he was able to converse freely and calmly with the doctors.

It is not my intention to write a complete history of my friend's experiences, but to narrate only a portion of those immediately bearing on the subject treated of. Whilst he adhered to the principle of the remedial power of change, and rigidly put it in practice, he steadily progressed towards convalescence ; but if, perchance, he diverged from this course, and indulged in studies which called into action the enfeebled faculties, his health quickly ran down to zero. One day he might be able to walk a few miles without fatigue, and the next, perhaps, could not go a few yards without assistance. At the time his health first gave way, he was studying practical chemistry, and the seat of brainial weakness embraced the organs of Individuality, Form, Size, Weight and Causality ; and ever since, even up to the present, the minute examination of objects, and sorting up of articles of any description, which require the attention of Individuality, Form and Size, cause a relapse of the old symptoms. This result is sometimes effected in twenty minutes, at other times half-an-hour's work is performed with

comparative ease. The first intimation he receives of the enervating effects caused by the morbid excitement is a smarting sensation, and a heaviness, accompanied with external redness over the region of Individuality, Form and Size, and partially over Locality. If he discontinue his operations, and recline for a short time, and divert his mind into another train of thought, he soon recovers; but should he continue his work, even for a few minutes longer, very prejudicial effects ensue, which it has in some instances required months to overcome. Under such circumstances, his head tends to lean forward, and he feels a faint sinking sensation at the stomach, which reclining abates, and his head is also relieved by pressing his fingers on the part affected. The organs of Individuality, Form, and Size are so susceptible to excitement, that a single sentence which calls them into action before he retires to bed at night frequently suffices to keep him awake for several hours; and to spend the rest of the night in horrible dreams. There is a peculiarity about his dreams which ought to be noted. When he is in his ordinary state of health, recent experiences and studies form the subjects of them; but, when he is debilitated, occurrences of a remoter date are reproduced. If the scenes of early manhood be re-enacted, he is then considerably weaker; and, as he descends the scale in health, reminiscences farther past are vividly brought before his vision in dreamland, until memory yields up her chronicles of boyhood struggles, sorrows and joys,—he is, when this takes place, down at zero, and requires nursing, or is fast descending to that point, and must take immediate rest, and adopt the usual remedial measures. His

dreams therefore are of a pathognomonic character, particularly indicating the state of his health. Reasoning from analogy, or from his daily experiences, the cause of this dreaming peculiarity appears to be this. Naturally he is blessed with very great power of self-restraint, but when he is weak this power diminishes proportionately with his weakness, and the excited faculties being under less control, reproduce past scenes in a ratio with the intensity of their action, or the length they are capable of penetrating into memory's storehouse. But my business is to record facts, not to frame theories.

During the long term of fifteen years my friend has played the part of an invalid on the active stage of life, and his nervous system has become highly developed, and so sensitive, that no organ of his mind, whether of the intellect or the affections, can be active for a time without his being cognisant of the fact by feeling peculiar sensations in the part, by which means alone, he can point out the exact seat of each organ. Lest it be thought that his having a knowledge of phrenology, and understanding that particular objects and trains of thought are related to particular faculties, lead him to imagine that he feels those parts in the brain active, I think it necessary to affirm, that this is not the case. I have previously remarked that he does not brood over his troubles. I consider him remiss in his duty in this matter, and that he hearkens too little to the monitions of sensation and experience, and runs risks in physical and mental labor that cannot be too strongly deprecated, and for which he has had to pay dearly. Two or three times he has been bordering on alienation through heedlessness to Nature's warn-

ings. Not many years ago, the organs of Philoprogenitiveness and Adhesiveness were brought to a high state of activity by protracted family affliction. So long as he maintained comparative strength he overcame his feelings, but no sooner did his strength give way, than Philoprogenitiveness started into ungovernable activity, and persisted in presenting his son to his mind as being in a dangerous state. But he repudiated the idea, as he had not then special reason to be apprehensive for his son's health or safety. Notwithstanding, Philoprogenitiveness urged her case with such persistency and power, as to entirely overcome the dictates of his judgment. One night, after going to bed in an exceedingly prostrate condition, Philoprogenitiveness brought his son very endearingly before his mind's eye, and suggested that he was not safe; judgment disputed with her, and for a time fenced off her attack, but was ultimately forced to yield, and a scene ensued. My friend anxiously inquired of his wife of the whereabouts of his son. She answered that he was in bed. "Are you sure of that?" he nervously asked. "Yes," she replied, "Why do you ask?" Not wishing to exhibit his weakness, he did not answer for awhile, but struggled manfully against his feelings, until resistance was useless; then, excitedly springing up in bed, he cried out, "They will take him out of the window," and tears of inexpressible grief ran profusely down his cheeks. To faithfully delineate his state is beyond my power of description. He knew there was no more fear of his son being taken out of the window than there was of him taking a journey to the moon. Yet, he was compelled to act, as though he were in extreme danger—about to be separated from him by the cruel hands of

brute force. In the midst of these morbid manifestations he fully understood their cause, and was able to prescribe effective remedies. Following his instructions, his wife made magnetic passes over the excited organs and down the spine, which happily relieved him. Twice since, has this drama been re-enacted in all its parts, under precisely similar conditions, and with like results; and each time after the excitement had passed way, he indulged in a hearty laugh at the ludicrousness of his position—although he was deeply impressed with the fact, that he had narrowly escaped the clutches of incipient madness. At these times, the organ of Philoprogenitiveness appeared to be more particularly affected in the anterior inferior portion, and a dull aching pain, accompanied by a throbbing sensation, was felt in the part. When any of his mental organs are unduly active, he feels an almost irresistible inclination to stroke the part with his hand, and to press his fingers against it, by which means relief is afforded; and, when he diverts his thoughts to other subjects, and brings into action other faculties, he distinctly feels a change take place, both externally and internally. He feels the excitement to subside in one class of organs and activity to commence in others, and, in many instances, with astonishing rapidity.

An idea of my friend's caution in drawing conclusions from his sensations, may be gained from the following fact. During a period of three years he has often felt a painful sensation, parallel with the outer angle of the eyes, and midway between them and the ears. Hundreds of times he has leaned his head on his hand at the part, or pressed a finger against it; and as frequently wondered what could be the

cause of the malady. Thinking, speaking, reading, or other mental effort, reproduced the symptoms. Similar effects being apparently produced by diverse causes, he experienced great difficulty in determining whether or not they resulted from the deranged function of a mental faculty. He observed, however, in all cases, when he felt this distressing ailment most, that his digestive powers were very weak; and thinking, probably, the two facts might have some connection, he continued to take notes of the peculiar phases of the complaint, and the state of his stomach, and the nature of his studies, up to within a few days of the present time, before arriving at a satisfactory conclusion; but he is now fully convinced, that the seat of the feeling is the anterior portion of the organ of Alimentiveness, although he is not yet able to say, whether the brain, or the stomach, is most at fault—which is the cause and which the effect. He knows, however, by painful experience, that mental effort seriously affects his stomach, and debility of that organ affects his mental faculties. Reading a page will often cause a pain in the stomach, and otherwise create functional disorder; and a moderate meal frequently draws a thick curtain over his mind, and shuts him up in mental obscurity; consequently, if he desire to think, he must eat very sparingly, and if he wish to digest sufficient food for his bodily requirements, he must give up all mental exercise.

Monotonous sounds distress him terribly. In the spring of 1863, he put up one night at an hotel, near to the south end of London Bridge. The omnibuses and other vehicles ran to and fro, till nearly one o'clock a.m., and the cabs for a much longer period, with little intermission, in one

continuous train; making a very monotonous, and apparently interminable sound, which was but slightly relieved by the rumbling of railway trains, and the horrible screeching of steam-whistles. This nearly drove my friend mad. Several hiding-places were graphically presented to his mind, but were as treacherously illusive. He in vain stuffed his ears to obtain a short respite. His entire body seemed, as it were, to have been transformed into a huge, but sensitive ear, and every nerve into a conductor of sound. He felt an indescribable disgust with the house, and everything contiguous thereto, and it took all his remaining strength to overcome an inclination to rush out of the window to escape the racking torture. O, he thought, could this maddening monotony be broken by any means, however desperate and terrific, it would be salvation—the bursting of a boiler, the rushing haste of fire-brigades, or the commingling of warring elements, nay, a thousand thunders, or the cannon's dread roar, would have been hailed as great deliverers, like the gallant crew of a lifeboat by shipwrecked mariners. But, 'twas all to no purpose—on, on, continuously on moved the monotonous train. His mind was so fearfully impressed with this event, that he never recurs to it without a shudder.

An infidel lecturer, who did not believe in the existence of either God or devil, heaven or hell, having descanted on the villainy of the workers of evil, exclaimed in disgust, "Hell! there ought to be a hell, if it were only to dip incorrigible rascals in the lava of its brimstone waves!" My friend fancies that if this lecturer had gone through his experiences, he would have found no necessity for the nether regions to improve evil-doers; and that, instead of suggest-

ing a dip in brimstone lava, as a scare-crow, he would have recommended a night at the south end of London Bridge, under a fit of supersensual irritability.

Monotonous sights, also, disagreeably affect my friend. This was painfully apparent in January 1868, while on a visit to Inverness. In Scottish modern architecture, the dormar-window is much in vogue, but especially so about Inverness. There, the suburban villa residences, the new streets of three, two, and even one storey houses, have their tops ornamented with numerous dormar-windows and fantastic gables. These were to my friend monotonously ugly, and they produced disagreeable sensations in the organs of Form and Size, which necessitated him to shade his eyes, until, fortunately, a plain roofed stately mansion burst upon his view, on which he delightedly gazed for a considerable time. This change of sight acted charmingly—like a fertile spot in a sandy desert to a weary traveller—and enabled him to pursue his journey with comparative comfort.

As I shall frequently have to refer to my friend's experiences in defining the locality and functions of the organs, I shall conclude for the present, simply premising that those already described demonstratively prove the brain to be an aggregate of organs.

Practical Reflections.—Every mental faculty and physical organ of man has its use and its own sphere of action, and it is only by the proper exercise of our faculties that health can be obtained, and the largest amount of pleasure, commensurate therewith, can be enjoyed. The Creator was not wasteful of his resources in forming the

grandest of his productions, and made no unnecessary appendage ; and he designed that no faculty should remain in idleness, except at the expense of personal comfort and the general weal. He has established in the laws of our constitution an intimate relation between our necessities and mental and bodily exercise—the supply of the former being dependent on the functions of the latter.

Functional inactivity and over-excitement are fertile causes of debility, and consequent diminished pleasure and peace of mind. Therefore, indolence and excesses of all kinds—*intellectual*, *moral*, and *affectional*, as well as *animal*—are incompatible with pure and rational enjoyment.

A watch may be of the best construction, and admirably adapted for keeping time, but, if *any* of its parts become deranged, dirtied, or otherwise injured, the whole machine will be affected, and its efficiency impaired. The same law applies with equal force to man ; he is a machine of the most delicate and complex construction, very liable to get out of order, and to be rendered unfit for accomplishing the purposes of his being.

The violation of every natural law entails certain and direct punishment on the offender, and indirectly on the innocent—for, depravity is productive of degenerecy by hereditary transmission of qualities, and sin in all its forms is corruptive in its influence—whether its rottenness be hidden and made attractive by a comely exterior, or its repulsiveness remains visible in all its hideous ugliness.

CHAPTER V.

SIZE AND QUALITY OF BRAIN THE MEASURE OF POWER.

That size of brain greatly influences the mental manifestations, is seen in the light of comparative anatomy—that is, by comparing the size of brain and mental state of animals of a low grade with those of a higher. It is found that, as the brains of animals ascend in development, they rise proportionately in the scale of intelligence. Reliable proof that size of the human brain is indicative of mental power, can, however, only be obtained by comparing individuals as to their intellectual status. This may be done (1), by comparing those whose temperaments and health are similar, and who have been equally educated, and brought up under like influences; (2), by comparing individuals that have risen superior to deficient education and adverse circumstances, and attained intellectual eminence, with those who have been similarly circumstanced, but remain in comparative ignorance and poverty; and (3), by comparing imbeciles with persons of ordinary intelligence. By adopting these methods, the diligent and impartial investigator will soon obtain satisfactory proof that, other things being equal, size is the measure of mental power. In these investigations, it is important to distinguish between *mental* power and *intellec-*

tual power. The latter refers to size in position, or the particular configuration of individual heads; the former to absolute size, regardless of conformation. In illustration of this principle, I shall suppose three individuals of an equal volume of brain, temperament, and health. The one shall be a mere booby in intellect, but of strong passions; the second much the same in intellect, but of a good moral nature; while the third shall manifest very little emotional feeling, but much intellectual acuteness. *Notwithstanding this great diversity of intellect, they would manifest equal mental power, but in different directions.* This is not a fanciful, but a real picture of human nature. It would not be attended with great difficulty to select some such individuals of each class from any large assembly—the experience of observant persons will furnish them with many such examples. Care should therefore be exercised in duly considering all the conditions before coming to a final decision on the influence of size on the intellect. In all cases, in comparing individuals, the quality of their brains should be estimated; for, as a thin bar of malleable iron will sustain a heavier strain than a much thicker bar of cast iron, so will a less brain of good quality put forth greater energy than a larger one of inferior quality. Perfection of tone cannot be brought out of a piano that is built of inferior material; neither can mind manifest exalted genius through the medium of an organism whose elementary particles are not of good quality. It is also equally important to take health into the estimate, because, as we have seen in my friend's case, the mental manifestations are greatly influenced thereby. The same principle applies in estimating the size and power

of the individual organs of any person's head. Constitution, or temperament, also exerts a great influence over the brain's operations, which will be noticed hereafter.

On the intimate connection between organic size and energy of function, "Desmoulins," says Mr. Combe, "states that the nerves of *sensation* going to the arm and the hand (the chief instruments of touch) are, in man, five times greater in volume and surface than those going to the *muscles;* whereas, in the horse and other animals with imperfect touch and great muscular strength, the proportions are so much reversed, that the mass of the muscular nerves exceeds that of the sensitive nerves by one-third. Again, in the case of the other external senses, the size of the nerves is always proportioned, *cæteris paribus*, to the intensity of the function. Monro, Blumenbach, Cuvier, and Magendie, state this fact. In fishes, Desmoulins found the auditory nerve twenty times larger, in proportion to the size of the animal, than in *mammalia* and birds—water being less fit than air for the transmission of sound. Those animals which enjoy an acute sense of smell, are remarkable for the great size of their olfactory nerves. For instance, the bear, the sheep, the dog, and the cow, have a large surface of the internal nostrils covered with nervous fibrils. In like manner, large nerves of taste uniformly attend superiority in that function. And in vision, the same proportion between size of organ and intensity of function, is most remarkably displayed. In eagles, whose sight is very keen, the ganglion whence the optic nerves arise are equal in size to one-third of the whole brain; whereas in the owl, which sees imperfectly, they are not equal to more than one-twentieth. In birds of prey, the

nervous expansion of the retina in the eye is said by Desmoulins to be curiously folded and doubled upon itself, like the frill of a lady's gown, for the purpose of affording room for a large surface in a small space.

"The brain forms no exception to the law which we are considering; and most physiologists admit that, all other things being equal, the mental manifestations are vigorous in proportion to its size. Cuvier and Magendie are no mean authorities. In speaking of the cerebral lobes being the place 'where all the sensations take a distinct form and leave durable impressions,' Cuvier adds, that 'comparative anatomy offers another conformation of the *constant proportion between the size of these lobes and the degree of intelligence of animals.*'"—*Elements of Phrenology*, 9th edit. pp. 15, 16.

"There is," says Quain, "an indisputable connection between size of brain and the mental energy displayed by the individual man or animal. It cannot be maintained that size is the sole circumstance that determines the amount of mental force. But just as largeness of muscle gives greater strength of body, as a general rule, so largeness of brain gives greater vigour of mental impulse. The measurements of the heads of remarkable men have often been quoted: 'all other circumstances being alike,' says Dr. Sharpey, 'the size of the brain appears to bear a general relation to the mental power of the individual—although instances occur in which this rule is not applicable. The brain of Cuvier weighed 64 oz., and that of the late Dr. Abercrombie about 63 oz. avoirdupois. On the other hand, the brain in idiots is remarkably small. In three idiots, whose ages were sixteen, forty, and fifty years,

Tiedemann found the weight of their respective brains to be 19¼ oz., 25¾, and 22½ oz.; and Dr. Sims records the case of a female idiot, twelve years old, whose brain weighed 27 oz. The average weight of the human brain is taken at about 3 lbs. (48 oz.)."—*Quain's Anatomy*, vol. ii., p. 432.

"In a paper by Mr. John Marshall, of University College, read before the Royal Society, June 1863, the author gives a minute account of three brains—one the brain of a Bushwoman, the others the brains of two idiots of European descent. The Bushwoman's brain was computed to have weighed in the fresh state 31½ oz. One of the idiots was a woman aged forty-two years; she was able to walk, though badly, to nurse a doll, and say a few words; the weight of the brain was 10 oz. 5 grs. The other was a boy of twelve, he could neither walk nor handle anything, nor articulate a single word; the weight of his brain was 8½ oz. These are the two smallest idiot brains on record.

"Mr. Marshall enters into a very minute description of the structure of all the three brains, and his remarks are valuable, as showing what other deficiencies, besides weight, attach to the brains of human beings of low mental power. Not merely is the cerebrum in idiots a small organ having all the proper parts on a smaller scale, but these parts are fewer in number, less complex and different in relative proportion and position; and, in particular, the convolutions of the brain are much less developed, much simpler, than in an average brain. On comparing the two idiots in question, the convolutions of the woman were more developed than those of the boy.

"The circumstance of inequality in the richness of the

convolutions has been alluded to by physiologists, as explaining the cases of great mental power allied with brains not above the average weight. Such differences have actually been observed in the examination of brains. The brain of Cuvier was said to be distinguished in this respect as well as in weight. But the connection of force of mind with richness of convolution is also liable to various qualifications. It does not hold in the comparison of different species—the sheep's brain is more highly convoluted than the dog's; and there are well authenticated cases of men of superior powers, whose brains both as to weight and to convolutions were below the average. Still, there can be no doubt that generally, though not universally, an increase in one or both of these peculiarities is the concomitant of a higher mental endowment. Both the statistics of the races of men, and comparative anatomy, are decisive to this extent.

"We may readily suppose that, with a view to intellectual power, an abundance of nervous element—fibres and corpuscles—must be accompanied with a felicitous distribution or arrangement of them."—*The Senses and the Intellect*, by Professor Bain.

The effect of size of brain on mental manifestations is very apparent in the different races of mankind. Mental science is much indebted to Blumenbach, the eminent Dutch naturalist, for his physiognomical classification of man, but not less so to the late Dr. Morton of America; Dr. J. B. Davis, M.D., F.S.A., &c., of Hanley; Professor Huxley; Professor Owen, and a large number of other investigators, for their indefatigable labors in collecting specimens, and everything calculated to throw light on man's mental organism.

Professor Morton collected the largest number of crania of the different races of man, up to his time, and measured their internal capacities by means of white pepper seeds. These valuable specimens are now in the possession of the Academy of Science, in Philadelphia. The last catalogue of them was published in 1857, under the care of Dr. J. Aitken Meigs, and numbered 1035 specimens. The result of Morton's measurements strictly accorded with Blumenbach's physiognomical observations, and placed the races in precisely the same positions in point of size. The Circassian crania measured the largest, the Mongolian second in the descending scale, the Malay third, the American or Red Indian fourth, and the Ethiopian fifth.

Dr. Davis has the largest collection of crania of different races of the present day. He published a catalogue of them in 1867, with tables of eighteen different measurements. At that time he possessed 1540 specimens; and two years later he had added to his cabinet 150 more.* He measured their internal capacities with dry Calais sand, and he thus sums up the result of his investigations:—"As a general deduction, it may be said that the several great divisions of mankind stand in the following order, in reference to the size of their skulls and brains, beginning from the lowest and ascending upwards:—Australian races, general average 81·7 cubic in., African races,

* I had the pleasure of visiting Dr. Davis on December 17th, 1869, and of spending a few pleasant hours with him in examining his valuable ethnological collection, which then numbered nearly 1700; and I take this opportunity of acknowledging his courtesy and kind endeavours to make my visit as interesting as possible.

86·2 cubic in.; American races, general average 89, which is evidently too high, as is proved by Morton's table; Asiatic races, 88·7; Oceanic races, 89·7; European races, 92·1 cubic in. This order of the geographical divisions of mankind is most likely correct, except in the case of the American races, which may probably come before the African in this ascending series. The general average obtained by Morton from his vast collection of 341 American skulls was as low as 80·3 cubic in., which is, in truth, below our Australian general average. It has hitherto been usually admitted that Europeans had the largest brains amongst the great divisions of men, and that Australians had the smallest; but it was not previously known that the people of Oceania stood next to the first; yet there seems every probability of this being really the case.

"It is probable that enough has been said to show that the average development of the brain is less in some races than in others, and to afford a general indication of those races presenting the largest brains, as well as those which possess the smallest brains. In conclusion, it may be remarked, without intending to question that a voluminous brain is usually a good indication of mental capacity, that it seems likely that Morton erred somewhere when he regarded the cubic capacity of the skull as the sure and simple index of the mental power. Whilst the truth of the general law must be admitted, the observation of different races shows that there must also be other essential elements which require to be taken into the estimate of the psychical measure of the different races of man. The difference in the volumes of their brains is too little to account for the im-

mense diversities observed in the kinds and degrees of their mental powers."—*Thesaurus Craniorum*, p. 349–351.

It is quite true that the difference in the size of the brains of the human species is insufficient to account for their great mental diversities. This fact is so thoroughly established, that it does not admit of a doubt; and Phrenology points out "the other essential elements which require to be taken into the estimate." They are (1), The form of the brain, or the relative size of the intellectual compared with the moral and basal regions; (2), the quality of the brain; (3), the temperaments; (4), education; and (5), accidental circumstances.

The doctrine of size being a measure of power is forcibly and instructively exemplified in the position of the British in India. There we have a few thousands of our countrymen keeping in subjection about one hundred and forty millions of Hindoos; and the only tangible reason that can be assigned for such an anomolous state of things, is the difference in the size of their heads. The head of the Hindoo is beautifully formed, but much smaller than the English head. That the Hindoos feel their degraded position, and groan under the humiliation to which they are subjected, is notorious. Their wide-spread dissatisfaction was strikingly attested in 1857, in their determined attempt to forcibly liberate themselves and throw off their yoke of bondage, even at the horrible expedient of exterminating the usurpers. This uprising was most terrible in its consequences, and stands almost unparalleled in the annals of unbridled passion, blood-thirsty vengeance, and barbarous massacre. It showed, however, that, though the Hindoo is capable of

planning and clandestinely executing a systematic and determined conspiracy, and perpetrating unheard-of atrocities, he is, when measured against the British, very deficient in energy, and must of necessity succumb to his overwhelming power.

Very different relations exist between the British and the Afghans. The latter have shown a patriotic and chivalrous spirit, and have stoutly resisted European encroachments. They have kept the invader at bay, and, although obliged to acknowledge the superiority of his arms, have compelled him to acknowledge their rights, and pay deference to their power. The Afghans and Beloochees united number in all about seven millions—only one-twentieth the number of the Hindoos. Then, why is it that they have not been subdued? Because they have larger and more energetic brains than the Hindoos, and which more nearly approach the English in size. There are, doubtless, other causes, but this outbalances all the rest, and gives the clue to the real position.

The native Australians and New Zealanders form a striking contrast in character and size of head, and prove incontrovertibly that great energy has for its basis largeness of brain and nerve.

The Australians have the least heads in the world, and are characterized by the smallest amount of manhood and intellect, and capacity for civilization. They are barbarously treacherous; but in open warfare their power evaporates in noisy demonstrative songs and fantastic dances.

The New Zealander, on the contrary, has a large head, and much strength of intellect. He is quite alive to the

power of civilization, and understands his rights, and is courageous in their defence. Whilst the Australian naturally retires before the colonist, the New Zealander heroically disputes his advance. In warfare he is bold and intrepid, dashing in attack, and skilful in defence. Superior force and armaments may signally defeat him; but the only means of successfully and permanently subduing him, is to treat him honorably, and yield him his just rights.

Phrenological students must accustom themselves to observation and discrimination, *and must not confound the effect of mental activity with the results of power*, which is too commonly done. Inaccurate observers, reasoning from false premises, get entangled in the meshes of sophistry, and form erroneous conclusions. Partial critics and short-sighted opponents are wonderful sophists. It is very amusing to the experienced phrenologist to witness the self-satisfaction with which these persons disburden themselves of their foibles.

Mr. Combe, in one of the finest passages of his voluminous writings, thus graphically and beautifully decribes the difference between mental power and mental activity:—"In mental manifestations (considered apart from organization) the difference between energy and rapidity is equally palpable. On the stage, Mrs. Siddons and Mr. John Kemble were remarkable for the solemn deliberation of their manner, both in declamation and in action, and yet they were splendidly gifted with vigour. They carried captive at once the sympathies and understandings of their audience; they made every man feel his faculties expanding, and his whole mind becoming greater under the in-

fluence of their energies. This was a display of great power. Other performers again are remarkable for vivacity of action and elocution, who are nevertheless felt to be feeble and inefficient in rousing an audience to emotion. *Activity* is their distinguishing attribute, with an absence of vigour. At the bar, in the pulpit, and in the senate, the same distinction may be observed. Many members of the learned profession display great fertility in illustration and fluency of elocution, surprising us with the quickness of their parts, who nevertheless are found to be neither impressive nor profound. They possess acuteness without strength, and ingenuity without comprehensiveness and depth of understanding. This also proceeds from activity with little vigour. There are other public speakers, again, who open heavily a debate, their faculties acting slowly but deeply, like the first heave of a mountain wave. Their words fall like minute guns upon the ear, and to the superficial listener they appear about to terminate ere they have begun their efforts. But even their first sentence, though unimpassioned, is characterized by weight; it rouses and arrests attention; their very pauses are expressive, and indicate gathering energy to be embodied in words of power. When fairly animated, they are impetuous as the torrent, brilliant as the lightning's beam, and overwhelm and take possession of feebler minds, impressing irresistibly with a feeling of gigantic energy."—*Elements of Phrenology*, p. 18.

CHAPTER VI.

THE TEMPERAMENTS.

THE term Temperament (from the Latin *tempero*, I mix, or temper) is used by physiologists and phrenologists to signify the mixtures of the constitutent elements of the body, and the relative proportions they bear to each other, and to point out constitutional differences, caused by their unequal distribution.

A knowledge of the temperaments is of the greatest importance to the practical phrenologist, for, without it, no efficiency in the art can be attained; and no estimate of character and tendencies is reliable wherein due allowance has not been made for temperamental influences.

Constitutional differences are everywhere visible, and have at all times been observed, but various opinions have been held by physiologists and philosophers regarding their cause. An individual is said to have a good constitution when all the organs of the body are equally proportioned and similarly well developed; but, where equality does not exist, a consequent difference of a deteriorating character is produced in the constitution. Hippocrates, the father of medical science, who flourished about the fourth century before the Christian era, believed the higher class of animals to consist

of four elements, namely—blood, lymph, yellow bile, and black bile; and he defined the temperaments according as any of these predominated in an individual; first, there was the *Sanguine* temperament, produced by a predominance of blood; next, the *Lymphatic*, caused by an excess of lymph in the animal tissues; third, the *Choleric* temperament, resulting from a superabundance of yellow bile; and fourth, the *Atrabilarious* or *Melancholic* temperament, produced by black bile. The latter element, however, had only a fancied existence, and a belief in it has been given up. It is well-known that the healthy or unhealthy state of the blood, lymph, and bile materially affects the mental manifestations. This has been corroborated by every observer since Hippocrates assigned to these fluids the primitive causation of constitutional derangement. That philosopher, however, fell into a grave error in attributing to the temperaments the origin of several mental faculties. Various views have been held regarding the temperaments since the time of Hippocrates, but his classification continued, with little modification, to prevail up to a recent period. Dr. Spurzheim adopted it, but added thereto the *nervous temperament*, which originates from the brain and nervous system.

Spurzheim appears to have had a just conception of the temperaments, and their vast influence on the manifestations of both mind and body. He described their external appearance, and how their different combinations altered the physical form; and he published lithographic drawings illustrative of them in his physiognomical system. He considered that a lymphatic, a sanguine, a bilious, and a nervous temperament might be spoken of with great propriety.

Dr. Thomas, a French author, promulgated another theory which has gained many adherents. Believing that every organ acted with a degree of energy in proportion to its size, other conditions being equal, he divided the organs into three groups or systems, which he viewed as producing all the vital energies of the frame. His first group, which he believed to produce the lymphatic temperament, are situated in the abdomen, and their office is to digest food and make blood. The second group comprise the heart and lungs; they are located in the thorax or chest, and their functions are to circulate and purify the blood; they form the sanguine temperament. The third group are situated in the skull, and consist of the cerebrum, cerebellum, medulla oblongata, and cephalic ganglions, or the entire brain, and give rise to the nervous temperament. On the different degrees of the development of these systems, and the proportions they bear to each other, depends the temperament of any individual, according to the theory of Dr. Thomas.

A difference of opinion still exists in reference to the nature, nomenclature, and classification of the temperaments; but the difference having regard to their origin is more apparent than real, and arises in a great measure from the various positions from which they have been viewed. Dr. Spurzheim appears to have viewed them from a pathological standpoint, and considered the effects produced by their healthy or unhealthy condition; while Dr. Thomas observed from an anatomical and physiological point of view.

Dr. Thomas's classification is based on sound principles, but it is nevertheless incomplete, as it does not include

one very important class of organs. No allowance is made for the influence of the athletic structure, in which the vital force is frequently concentrated. It is obvious that the functions which exhaust the vital force must be taken into consideration, as well as those which generate it.

It is desirable that the names of the temperaments should be free from ambiguity and clearly defined, so that their meanings may be easily comprehended. In this respect, I think those of Dr. Spurzheim are faulty; for example, the term *Bilious* naturally leads to the consideration of the bilious secretions. Now, vitiated bilious secretions unquestionably have a powerful effect on the bodily and mental functions, unhinging the entire system, and causing a caustic feeling of ill-temper, and inclining to mopishness; and they must, consequently, be taken into the account in temperamental estimates; but, though particular constitutions are predisposed to inactivity of the liver, this is an ailment that is not restricted to any class of constitutions, and the name Bilious is, therefore, unsuitable for a temperament. The names should, as far as possible, refer to organic conditions, rather than to modes of functional activity.

The term *Lymphatic* is also, in my opinion, an inappropriate one for a temperament, and cannot be received by those who believe in size being a condition of power; because the function of the lymphatic vessels is to absorb the lymph. Now, when these vessels are large and healthy they perform their functions energetically, and reduce the quantity of lymph in the tissues, instead of causing an excess, which is the condition on which this temperament depends, or was thought to do so by Hippocrates; and Spurzheim

adopted this name without qualification, although the cause of the lymphatic temperament is generally referred to largeness of the abdominal viscera, and consequent tendency to corpulency.

Messrs. Fowler and Wells, of New York, classify the temperaments under the heads—*Vital*, *Mental*, and *Motive*. Their Vital includes the Lymphatic and Sanguine of Spurzheim; their Motive, the bony and muscular systems; and their Mental, the brain and nerves. The reason they assign for forming a new classification, is their desire for explicitness, and to avoid misconception. "They gave up the use of the term nervous temperament," says Mr. L. N. Fowler, "as some persons are nervous because they have taken strong tea," but have only moderate mental power. This is undoubtedly the case, and he might have added other beverages also. Persons of high mental endowment may suppose, when told by a phrenologist that they have a nervous temperament, that he thinks they are afflicted with some phase of nervous disease, and thereby erroneously interpret his meaning. I, therefore, prefer the terms Mental or Cephalic Temperament to Nervous, as being less liable to misapprehension.

I do not, however, think the term Motive equally appropriate, because it is not free from ambiguity. An idea apt to be conveyed by it is, that the person of whom it is predicated is quick and active in his or her movements, whereas the opposite might be the case. A person may be endowed with large muscular power, and be very slow in physical activity, and vice versa. But tell a person that he has the *Muscular* or *Athletic* temperament, and he could not well

misunderstand your meaning; consequently, I prefer the adjectives Athletic or Muscular, as they more definitely and explicitly point out the nature of this temperament.

The term *Vital*, also, is faulty. It has a too extensive signification for definitely pointing out any temperament. It comprehends the whole living structure; and I cannot give the American phrenologists credit for great discrimination in adopting it, and more especially for including in it the two groups of organs of the abdominal and thoracic cavities. These two groups perform distinct functions, and they hold no determinate relative proportion to each other. Their physical indications are also very different, and readily observed. Some persons have large abdomens and comparatively small chests. Others, again, have large chests and comparatively small abdomens. With such difference in organic structure, and therefore in energy of function, the term Vital temperament cannot always convey the right meaning. Besides, the nutritive and circulatory systems are not the only sources of vitality; deficient vital power is often felt when the thoracic and abdominal viscera are vigorous. Paralytic patients frequently eat, sleep, and grow fat, showing their nutritive organs to be vigorous, but, notwithstanding, they are very deficient in nervous energy. Every organ and tissue of the body, when in a state of health, is endowed with the property of life; but the vital impulses proceed from the brain and nerve centres, and the designation *Vital Temperament* necessarily includes these organs.

I conceive the doctrine of the temperaments to originate in physical imperfection, and its leading principle to be, that the most perfect human form, and the highest mental

endowment, have a necessary relation, and that any divergence from symmetry of parts and exquisiteness of outline, modifies the mental functions, either by unduly exciting them or by diminishing their energy. To fully comprehend the temperaments, and to understand their laws and importance, a correct idea of perfect physical organization ought to be formed in the mind, and this ideal picture should be retained in the memory, in order to be recalled at pleasure, for the purpose of comparing the form of individuals with it, so that the degree of their imperfection, and their constitutional peculiarities, may be more easily distinguished and their temperament ascertained.

The healthy functions of the entire organism, and the effects caused by any derangement, should also be understood by the phrenologist, to enable him to calculate the effects thereby produced on the mental manifestations. The causes of diseased functions ought to be known, too, so that rules may be laid down for their avoidance, and advice given in accordance therewith.

The human body is a wonderful piece of mechanism, made up of many parts, which are designed to act in harmonious combination, conducing to health, pleasurable emotions, and intellectual enjoyment. It may be correctly compared to a musical instrument, and the mind to its performer. If an instrument were imperfectly constructed or badly tuned, it would give forth discordant sounds, though presided over by the most dexterous manipulator: even so is it with the mind—it is equally dependent on a perfectly constructed organism for its proper manifestations.

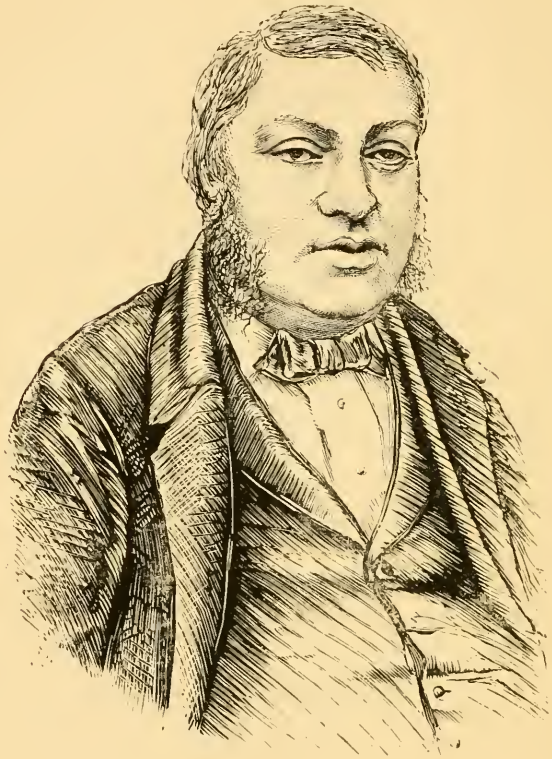
It is very difficult, if not impossible, to form such a classi-

fication of the temperaments as to embrace all the disturbing influences the body and mind are subject to, and to which objections might not be taken. They may be divided into Anatomical, Physiological, and Pathological; and these, again, into numerous subdivisions, which, from their complexity, would have a tendency to bewilder the mind of the student, rather than enlighten his understanding.

Fitness and adaptation pervade the whole of Nature, and whatever disturbs the equilibrium of her forces, so far unfits her for fulfilling her allotted office; and every disturbing cause of man's organism and functions must be duly considered by the phrenologist—disproportion of the size of the organs, unequal distribution of the vital force, and functional derangements in all their multifarious phases, as well as their causes.

The best method of classification, in my opinion, is the one struck out by Dr. Thomas. To group together those organs that have a similarity of function, and give names which have a direct reference to them—indicating their power to act, rather than modes of functional activity. The following names appear to me the most appropriate. First, the Nutritive or Abdominal temperament; second, the Sanguine or Thoracic; third, the Mental or Cephalic; and fourth, the Muscular or Athletic. When these groups are fully developed and suitably proportioned, the temperaments are equally balanced; and individuals so constituted are most highly endowed for performing all the duties of life—all the parts, possessing equal vital energy, are equally fitted for exercising their functions.

Pleasure and pain are our chief prompters to action. We



W. H. HEAVISIDES.

Nutritive Temperament.

Little need be said of this person,—his enormous abdomen, comparatively small head and dull sleepy eyes, adequately portray the inactivity of his brain and his lack of mental perception. It takes all the nerve force the brain can generate to supply the digestive apparatus with motive power.

Portrait I.

JAMES SCOTT, ARTIST.

SANGUINE TEMPERAMENT.

Hopefulness, determination, and self-reliance are depicted by every muscle of the face of Mr. Scott. His head is rather large and his chest capacious, which fit him for more than ordinary mental and physical labor. The organs of Size, Marvellousness and Firmness are large.

Portrait II.

naturally desire happiness, and seek it in present and prospective pleasure, and strive for its continuance, increase, and renewal. Pain impels us to action, for the obtainment of relief. The healthy action of all our faculties affords pleasure, and pain ensues from inactivity; consequently, we are, by an inherent law of nature, spurred on to action. Every part is subject to the same law as the whole, and each feels its own wants, and demands its share of enjoyment. This tends to maintain the balance of power. But, if one organ be larger than the others, it possesses (other conditions being equal) as much more vital power as it is greater in size, and puts forth a more energetic impulse for gratification; and not only draws immediate attention to its claims, but imperiously enforces its demands, at the expense of the other parts of the body.

Another law of the animal organism is, that the organs which are frequently exercised, up to a certain point, become stronger; so that the largest organs increase in power, by virtue of their own energy. If, however, exercise be carried beyond the healthy point of endurance, it exhausts the energies, and causes disease.

A third law is, that energy must not be allowed to accumulate unduly, either locally or generally. It must be expended, or it will cause derangement of the functions.

A fourth law to be observed is, that the largest and most active organs claim to be first supplied with nerve force; and they have the power of exacting their claims, even to the detriment of the rest. Should there be a deficiency, the least and weakest organs will necessarily be the sufferers.

Hunger and thirst are intimations of bodily wants, and if

not attended to, cause pain; but satisfying their demands affords pleasure—two wonderful incentives to action. In like manner, Nature makes all her requirements known, and punishes or rewards, according as her monitions are attended to, and her laws obeyed or disobeyed.

The external indications of the *Nutritive Temperament* are a relatively large abdomen; an inclination to corpulency; roundness of form; soft, flabby, inelastic muscles; fair skin; light hair of fine texture; light colored, hazy, sleepy eyes; an indolent, inexpressive countenance; sluggish circulation, and a general want of vivacity. The vital energies being greatest in the digestive organs, more nutritive elements are extracted from the food, and taken up into the circulatory system than the small lungs can properly oxygenate and sanguinify. The blood, being deficiently oxygenated, is consequently less stimulating, and the whole system becomes dull, and all the functions of the body and the mind are lazily performed; and a need of, and a desire for, stimulants of an artificial nature are felt and thought indispensible. Persons with this temperament soon feel fatigued, and prefer situations where little exertion is required; they take more pleasure in eating and drinking, than in working and thinking; but are not necessarily gourmands. In fact, they often eat sparingly, but enjoy what they eat, and owing to their excellent digestive powers, they get more nutriment out of a given quantity of food than persons who are differently constituted.

The *Sanguine Temperament* is indicated by a relatively large chest; moderate plumpness and firmness of flesh; quick, animated, expressive eyes, of blue or grey color;

LORD NAPIER OF MAGDALA.

Muscular Temperament.

His lordship's general build is indicative of great muscular strength and power of endurance. The configuration of his head shows a quick perceptive and analytical intellect, firmness of purpose, punctuality, constancy and industry. The organs of Weight, Locality, Comparison and Firmness are large.

Portrait III.

CHARLES ALGERNON SWINBOURNE, Poet.

Mental Temperament.

Mr. Swinbourne has a large head and apparently a quick restless brain, considerable intellect, and a lively imagination. But his chest is small, the nutritive powers are weak, and his physical system generally is ill-suited to supply the brain with recuperative vitalizing force as fast as he inclines to work it off, and unmistakeably denotes a preternatural tendency to premature exhaustion. The organs of Eventuality, Comparison, Causality, Benevolence, Ideality, and Destructiveness are large, the social feelings strong, and Veneration small.

florid complexion, and vivacious countenance; flaxen, light-brown, or sandy colored hair; and a full, bounding pulse. The lungs being large, the blood gets properly oxygenated, and is energetically propelled through the arteries by a vigorous heart, and the system is thereby greatly stimulated, causing a restless anxiety to expend the energy imparted. The muscles and brain alike partake of the influence, and persons of this temperament feel acutely, and have a strong desire for gratification, but the direction in which satisfaction will be sought depends on the cerebral conformation. They have generally, however, a desire for outdoor sports, picnic parties, and such like enjoyments. They generally commence enthusiastically with everything they take in hand to do; but temperament alone does not impart the power to continue to the end with the same thoroughness and right-hearty good will. The seat of this property must be sought for in the contour of the head.

The *Muscular Temperament* is known by proportionately large muscles, of considerable hardness and elasticity, thinly covered with fat; high cheek bones; harsh features; strong, dark hair; black or hazel eyes; an olive-tinted skin; and a cool, calculating manner. The vital force being directed to the muscles, physical exercise is sought as its natural outlet; but the movements are quietly and deliberately performed. This temperament fits for plodding industry; for the overcoming of difficulties by land or sea, at home or abroad; for exploring new regions; and for making conquests, either in the civil or war department. Our greatest generals and naval commanders have been well endowed with it.

The *Mental Temperament* is characterized by a proportionately large head; soft, silky, dark hair, sparse in quantity; thin, soft skin; small muscles, unencumbered with fatty substance; great sensitiveness; small features; pale face, indicating delicate health; and bright hazel eyes, which often sparkle with vivacity and penetrating keenness, especially when kindled with the lightning flash of thought, but are at all times expressive of mental activity. The motions are usually quick.

The brain when large and vigorous is a greedy, insatiable, literary gourmand, which demands the first and best supplies of vital force, even though the other organs wither and die of starvation—ever active and lavishly expending vitality—a thorough, wasteful spendthrift of Nature's resources. Continuous concentration of vital energy in the brain shakes the system to its foundations, and, when badly sustained by the abdominal, thoracic, and muscular systems, it soon wanes. The mental temperament is the least enduring—a taper of the finest material, that gives a most brilliant light, but is rapidly consumed.

The preceding description of the characteristic features of the temperaments, is given as a guide to the student, and is suggestive rather than exhaustive. It would be almost impossible to describe all the indications of those features; they change so greatly by combination.

Pure temperaments are spoken of by phrenologists. Dr. Spurzheim says, "These four temperaments are seldom to be observed pure and unmixed;" and Mr. Combe observes, "The different temperaments are rarely found pure." Certainly not. The condition is an impossibility. A combi-

nation of the temperaments in some form is a necessary condition of existence. I suppose what these eminent phrenologists meant to be understood by the term pure temperament, was a great predominance in size of one temperament over the others. This is the meaning I attach to it; and if I use the term, it must be understood in this restricted sense.

All that can be done is to point out the indications of predominating temperaments; but even these are not in all cases the same. For example, different individuals of the highly mental temperament may vary much in physiognomy. One may have the largest development of brain at the base, another at the coronal region, a third at the posterior, a fourth at the anterior, and a fifth at the lateral regions. Yet all these would take more delight in mental than in physical exercise, but in different directions, which fact would be expressed in their features. Great preponderance of any temperament alters not only the bodily form but the textures also, inasmuch as the group of organs which constitute it get better nourished than the rest, by the force of their own energy in exacting their claims. In other words, they draw vitality copiously to themselves, and thus flourish while the rest languish from lack of nutriment. Rules may be laid down to assist the student in his observations and inductions, but he must learn to observe and think for himself. The temperaments mix in all possible ways, and are named from their particular individual combinations, always commencing with the predominating one, and naming the others in rotation, according to their size. For example, if the mental temperament be the largest, the muscular next in size,

and the other two be equal, in any individual, he or she would be said to have the mental-muscular temperament. My method is to register them by a scale of twenty-four numbers. The full development of each temperament is represented by the figure 6, and a higher number than 6 indicates over-development, and less than 6 deficient-development. For example, take an individual whose temperaments are 8 parts nutritive, 8 sanguine, 4 muscular, and 4 mental, each of the two former would be over-developed two twenty-fourths, and the two latter would be deficient two twenty-fourths; consequently, he would have the nutritive-sanguine temperament.

The elements of the temperaments are probably hereditarily embedded in the constitution in determined proportions; but are not unchangeable from birth to old age. The worst combination is capable of improvement, and the best is liable to deterioration. Though the children may groan under the punishment due to their parents' guilt, their case happily is not irremediable. There is a way of escape from intellectual, moral, and physical degradation; but it is conditional, and the conditions embrace self-knowledge and self-denial.

To attain organic equilibrium is the great desideratum; and to attain this state necessitates a rigorous course of discipline—a keeping of appetite and palate under complete subjection, and an entire avoidance of everything calculated to have an adverse effect.

Individuals of the abdominal temperament should accustom themselves to physical exercise, and guard with a jealous eye the desire for indulgence of appetite, or for

lying immersed in feathers, or on soft couches. Work, work, fresh air, and abstinence, should be their motto.

Those who have the sanguine temperament have a tendency to passional excitement; they should put the curb on, and constantly wear the breaking-reins. And if the inheritors of mental temperaments wish to avoid doctors' bills, nervous dyspepsia, hypochondria, monomania, nervous tremors, and the numerous ills arising from excessive brainal activity, they must get out of their libraries, and be more social and jolly: they must not be afraid to laugh and enjoy life out of the literary atmosphere. The wants of the stomach, the lungs, and the muscles, must be attended to with religious observance.

The practical uses of the temperaments are many and important. In selecting individuals for particular offices, the temperaments must ever form an element in adaptability. A man having a large brain, but a small thorax and abdomen and thin muscles, might possess every qualification necessary for satisfactorily performing the duties of any office requiring great talent and tact—extensive knowledge, or mechanical and artistic skill; but he would not be able to undergo great physical exercise, nor to bear protracted bodily fatigue—such, for example, as is required of a general and commander-in-chief of an army engaged in active hostilities. He might manifest consummate ability in planning a campaign, and in strategetic manœuvre in handling his troops; but he would work off vitality quicker than his recuperative apparatus could supply it, and consequently he would succumb. Instead of his brain being well supported by vigorous nutritive and circulatory powers, it would be

heavily taxed to keep these functions active, and its stores would be thereby reduced, and rendered inefficient to supply the energies of the mind. Such a person, therefore, should not be selected to command large bodies of troops during a long and trying campaign, for he might break down at a critical juncture, and hazard irrecoverable defeat.

The Duke of Wellington and Napoleon were admirably adapted for commanders. They had well balanced, powerful temperaments. Their minds and bodies were fitted for herculean labors and unexampled endurance. Lord Napier of Magdala and President Grant may also be referred to as examples of temperamental suitableness for successful generalship.

An individual who has a capacious and fully developed chest, whatever may be his mental qualifications, is not fitted for a sedentary occupation where he would be much confined. His large lungs and vigorous circulation would cause a restless longing for a more active sphere of labor, which, if not gratified, would probably terminate in disgust for the office. A phrenologist would perceive at once by the stamp of Nature that a sedentary occupation was altogether at variance with the tastes, inclinations, and happiness of a person so constituted, and would recommend a pursuit more in accordance with his disposition and usefulness, and likelihood of success.

The temperaments, as I have previously said, are not fixed, but vary during life, and in some instances to a great extent. This law of nature might be advantageously pressed into service for the improvement of the human race. On this subject, Dr. Andrew Combe remarks, "In

education, the use of Dr. Thomas's theory is equally obvious. In early life the temperaments may be modified more easily than at any future period, and hence the importance of attending to them in the young. A boy of a thoracic temperament will be prone to violent exercises, and comparatively averse to mental occupation; but, by a judicious and persevering superintendence, and by gradually and proportionally extending the latter, and withdrawing the incentives to the former, a very beneficial change may, there is every reason to believe, be ultimately accomplished. And, again, the encephalic boy, with weak chest and muscles, may in time, by withdrawing the incentives to, and opportunities of, too much mental exercise, and by a properly regulated gymnastic training and muscular exertion in the open air, be greatly improved in bodily vigour, and yet retain his mental powers undiminished. And lastly, the abdominal boy, whose belly is his god, may, by proper regulation of diet, and mental and bodily exercise, be brought within the pale of humanity; whereas, if left to himself, animal indulgence and mental sloth would be his portion for life. In fact, while we write, examples of the applicability of this theory to education, to professional purposes, to morals, and to medicine, crowd in upon us."—*Phrenological Journal*, vol. iv., p. 604.

This is a step in the right direction, and these suggestions are valuable as remedial measures, but they do not go to the root of the evil. If we wish to command the course of a stream, we must trace it to its source—receive it as it issues from the womb of the mountain, ere it becomes swollen into uncontrollable dimensions, and rushes impetuously

onward to the ocean. It is not enough to begin at school and throw the burden of physical regeneration on the teachers. The work must commence at home. Parents must be indoctrinated into its absolute necessity, as an incumbent duty which God imposes upon them. They must take their children at birth, and bring to bear upon them all the beneficial influences which science and experience reveal, and continue the process through life. They should instruct them early in the laws of their being, and enforce the necessity of strict obedience to these laws, and of the advantages to be derived from personal discipline being rigidly practised at all periods of life and under all conditions. This is very important in carrying out the principles of physical, moral, and intellectual improvement; and it should likewise be brought to bear in courtship and marriage.

Courtship will probably never be exclusively carried on at the command of the intellect. Cupid will ever, in all likelihood, successfully combat the teachings of science and the dictates of the understanding; and Love-of-Wealth will continue to exert a powerful influence in connubial engagements. But if the young of both sexes were instructed respecting the evils arising from unsuitable matrimonial alliances, and strongly impressed with the terrible misery entailed on parents and children in consequence, they would be unconsciously influenced in the choice of partners by the force of those mental impressions. The teacher must be abroad, and put forth his energies for human enlightenment. It is imperatively necessary for the proper fulfilment of the command, "Be ye fruitful and multiply,

and replenish the earth," that man and wife should be adapted to each other in physical and mental constitution. Therefore, the philanthropist must be up and doing, and unflagging in exertion for the commonweal.

CONSTITUTIONAL QUALITY.—Is there a quality of organic structure separate and distinct from that indicated by the temperaments? Some think the temperaments embody all the conditions of quality, and probably a rigid analysis would show this to be so; but, in that case, a different classification of the temperaments from the foregoing would have to be made, and their number greatly increased. The classification I have adopted is based on size rather than quality, although in the description given of them many signs of quality are enumerated—in fact, these signs are so fully defined in the description of the mental temperament, that little more remains to be added on this head.

That there is a connection between outward appearance and internal quality all nature testifies. The Creator has affixed a stamp upon every individual thing to denote its quality, and it is our duty and interest to learn the teachings of this divine impress. The agriculturist and horticulturist judge of the quality and productive power of the soil, and its adaptability to produce certain crops better than others, by its appearance, and the soil's produce bears external marks of its quality; and so it is with animals which are used for food.

We are not left to vain surmisings with respect to a subject of such great importance as the quality of the brain and nerves; although important indications may be hid from

view, there are numerous signs to guide us in forming a useful estimate.

If two individuals who agree in size, configuration, temperament, health, education and exercise, differ in vivacity of expression, in sensitiveness, and in the quickness of their movements, under the same conditions, we may confidently infer, that the cause of this difference, is to be found in constitutional quality; and that the one who feels most acutely, and is the quickest in action, is richest in organic quality, which condition, will probably be manifested in fineness of surface.

Innate Energy and Endurance.—In judging of the adaptability of persons for special vocations requiring great and continuous mental or physical effort, or both these qualities, innate energy and power of endurance ought to form essential elements in the calculation—that is, the capability of the brain to generate and sustain motive power. Daily observation discovers great individual differences in these respects. Some persons are able to endure severe mental and physical labor for lengthened periods without fatigue, and when Nature does yield to a sense of weariness, the system is so elastic, that a few hours' rest fully renews the drooping powers; but others are soon tired, and require long intervals of rest to make up the energy expended, and they are unfitted for extra effort. Others, again, possess considerable animation, and are capable of sustaining vehement discharges of energy at times of emergency, but they soon exhaust their store, and, to replenish it again, Nature demands an amount of rest equal to, and even greater than,

the extra effort put forth—she exacts payment in full with interest for the capital expended.

The basis of *Energy* and *Endurance* has usually been referred to largeness of *brain* and *nerves*, and a well-balanced temperament; but, after long experience, careful observation, and close induction, I am convinced that these physical conditions, although necessary, do not fully account for the innate power under consideration, and that the connection between them and the power is very variable. Many persons possess these endowments in a high degree, and have trained their powers well, yet are not capable of sustaining great bodily labor for very long at one time; whilst others, whose organs are not so large, nor so equally developed, far excel in enduring quality. Therefore, energy and endurance must have some other basis than the aforementioned, and, as far as my experience enables me to judge, it must be looked for in the conformation of the head more than in its absolute size, or in the size and quality of the muscles. This does not invalidate the principle of size being the measure of power (when other conditions are equal), because form is one of the conditions.

Instances are neither few, nor confined to particular localities, of healthy individuals having full average-sized heads, well-developed muscles, and fairly proportioned temperaments, who are industrious, but slow in their movements, and indisposed for bodily labor; and some are indolent and positively lazy. Others, on the contrary, of similar temperaments, are active, energetic, hard workers, and capable of putting forth long, continuous effort in the performance of toilsome labor. They appear to be moved to action by

an internal impulse alone, as though the free expenditure of energy were an indispensible condition of their existence, and physical exercise the safety valve for the escape of their exuberant freshness. If the energy of such persons be not turned to some useful account, it will find vent in sports, like the restless playfulness of children and friskiness of young animals, or it may be exerted in reprehensible pleasures, and injurious animal indulgences. But bring to bear upon them the ordinary inducements to industry, such as gaining a livelihood, the acquisition of wealth and honor, or the cares of a household, the stimulus of a faithful husband or a parent's love, then, whatever be their vocation, they will do a large amount of work, and if guided by a vigorous and cultured intellect will be sure to merit honorable distinction, although it may be in a humble sphere.

For many years my attention has been directed to discover the cause of the difference in energy of persons of like temperaments, and having made hundreds of observations, I am of opinion that it has its origin in the form and size of a part of the cerebrum. I have invariably found individuals of the last named class, to have a large basal region of brain, the posterior lobe being deep, long and broad at the inferior posterior portions of Combativeness, and between this organ and Philoprogenitiveness. The heads of the first mentioned class, who are remarkable for want of energy, are much narrower and shorter at this part, and the base of the posterior lobe is not so deep. I have also observed, with regard to individuals in whom the posterior lobe is of equal depth, and who are alike in temperament, yet, notwithstanding, differ in energy and power of endurance, that the most energetic

and enduring have a fuller development in this part (see E in Phrenological Bust) than the others. For want of a better term, and to save circumlocution in pointing out the locality of this part, I have named it the *Centre of Energy.*

I have examined many persons who have been paralysed in the limbs, and have invariably found in those cases which indicated the disease to be the result of exhausted vital power, that the Centre of Energy was small. When any mental organ has been unduly exercised, external soreness is very commonly felt at the part; and corroborative evidence of the seat of a primitive faculty may be obtained by this means; and I have availed myself of it in the study of the locality of the Centre of Energy. I was recently called in to see a working-man who was prostrate from the effect of a wasteful expenditure of energy, during a fit which he had had a few days previous. While in this fit he had exerted an uncommon amount of strength, which was only overcome by the united energies of five or six men. On placing my fingers on the Centre of Energy, he complained of great sensitiveness in the part, and begged me not to press it. This extreme sensitiveness was not the result of any external injury, but of the previous morbid excitement which had caused the fit, and the consequent reaction.

My friend has several times been laid exceedingly prostrate through too long continued labor, and in all cases he felt considerable soreness in the seat of the Centre of Energy, especially at the base of it. After dreams, in which he has fancied himself to have walked much, or to have worked hard, he always feels a soreness, and a sense of weariness, in this centre. His experience, therefore, goes

to prove, that motive power is somewhat dependent on the activity of the Centre of Energy—dreaming being the result of the activity of an organ, or a number of organs, at the time the remainder are at rest—sufficiently accounts for the general lassitude of the dreamer, and especially of the sleepless organs, inasmuch as they have not been refreshed by the restoring influence of repose. I may state, however, that the seat of this soreness was so close to the base of the cerebrum in his case, that he could not satisfy himself whether it was situated in the upper surface of the cerebellum, or the lowest portion of the cerebrum, until the lapse of upwards of a year's experience, and careful analysis.

While reading the proof of this article in the ante-room of the Mechanics' Hall of one of our northern cities, a young gentleman consulted me as to the advisability of being magnetized for a nervous complaint. He had a rather large head, a robust-looking frame, well covered with fat, and his cheeks had a sanguine bloom ; but his manner was simple, and, although intelligent, he lacked smartness. It could not exactly be inferred that there was a tile off the dome of thought ; yet a leak was evident. I examined his head, and observing a large cerebellum, remarked that the goadings of Amativeness would probably give him trouble, and might urge to excessive, unnatural gratification. He said, "It has done so ; and I yielded to its solicitations and indulged in self-abuse, before I knew the evil consequences of it, and brought upon myself the weakness for which I came to consult you." He had been several months in an asylum. The posterior extremities of the hemispheres of the

head was sore at the back part where the cerebellum is situated, but much more so around the seat of the Centre of Energy.

The following day a surgeon called, and got a phrenological examination. His head measured 23½ inches in circumference. It was broad at the base from the forehead backward to the Centre of Energy, at which point it narrowed off greatly. His bones and muscles were large, his chest capacious, and his temperaments on the whole were about equal, fitting him for the performance of considerably more mental and physical labor than the average of persons. There were, however, obvious indications to an experienced eye of weakness arising from excess of some kind, and that Nature was craving for rest, and threatening violence if her demands were not complied with. He also felt his head sore at the Centre of Energy. I suggested the necessity of his taking rest; and he told me that several of his medical brethren had given him similar advice, which was in accordance with his own judgment, and that he was then making arrangements to carry out their recommendation.

Many other cases might be adduced in proof of enduring energy having its basis in a distinct cerebral centre, and indicating its locality to be at the inferior posterior margin of Combativeness, but to do so would lengthen out this branch of the subject unnecessarily.

It will be perceived that whatever drains the system of energy beyond its power of renewal naturally weakens it, and often causes an external soreness, and want of tone, in the Centre of Energy; and when this part is little developed, the individual is unable to endure much physical labor,

want of rest, or excess of any kind. At any rate, such is the result of my observations. The attention of all phrenologists is respectfully directed to this important part of the cerebrum; and any fact bearing on its function will be thankfully received by the author.

CHAPTER VII.

Behold this ruin! 'Twas a skull
Once of ethereal spirit full.
This narrow cell was life's retreat!
This space was Thought's mysterious seat.
What beauteous visions filled this spot!
What dreams of pleasure, long forgot!
But Hope, and Joy, and Love, and Fear
Have left their trace of record here.

Fig. 14.—Side View of Human Skull.

1, Frontal bone; 2, Parietal bone of the right-side; 3, Occipital bone; 4, Temporal bone; 5, Upper portion of the great wing of the Sphenoid bone; 6, Malar bone; 7, Superior Maxillary bone of the right-side; 8, Nasal bone; 9, The Orbit; 10, Inferior Maxillary bone; 13, Squamous suture; 14, Lambdoidal suture; 15, Coronal suture; *a*, Mastoid process.

A KNOWLEDGE of the anatomy of the skull is useful to the student, and I shall describe a few of its leading features.

The skull is divisible into two parts—the cranium and the face; the former is the bony cavity which contains and protects the brain, and is composed of eight bones—*two temporal*, *two parietal*, *one occipital*, *frontal*, *sphenoid*, and *ethmoid*. Most of their borders are serrated, and make, when articulated, zigzag sutures.

The temporal and parietal bones form the sides of the head; the former being situated at the inferior portion, and the latter at the upper. The temporals contain the auditory apparatus, and are divisible into three portions—the *squamous*, the *mastoid*, and the *petrous*. The mastoid portion contains the mastoid process—a bony projection immediately behind the ear, which is often mistaken by novices for the organ of Combativeness. The petrous portion projects inwards at the division of the middle and posterior lobes of the brain. The squamous portion is a thin plate of bone that articulates with the parietals at its upper edge, which is bevelled from the inside, and forms the squamous suture. A lengthened process proceeds from the temporal bones, projecting outward and advancing forward until it joins a similar process projecting backward from the malar bones, and forms the zygomatic arch. The reader, by tracing with his finger from the cheek-bone backwards, will feel the shape of the arch, and the direction it takes, in his own head; and, as it will occasionally be referred to, its situation and shape should be noted and remembered.

The two parietal bones articulate at the median line by

the sagittal suture, and are attached to the temporal bones by the squamous suture. They contain the crown, and descend a little backward, and advance forward over half the length of the head.

The occipital bone (A, fig. 15) composes the greatest portion of the base of the cranium, and unites anteriorally with the sphenoid, and laterally with the temporals. It contains the foramen magnum, or large opening, for the passage of the spinal cord, from which part it proceeds backward to the extremity of the cerebellum, then bends itself upward, and expands laterally for a short distance, and afterwards greatly diminishes in size until it terminates in a point at about two-thirds of the height to the crown; and it attaches to the pos-

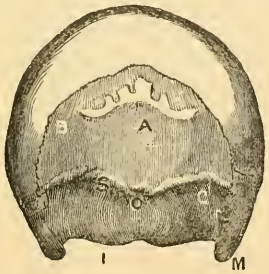


Fig. 15.—Back View of Human Skull.

A, occipital bone; B, lambdoidal suture; O, occipital spinous process; M, mastoid process; S, the transverse ridge, and the superior margin of the cerebellum; I, inferior margin of the cerebellum; L, lateral margin of the cerebellum.

terior borders of the parietal and temporal bones by the lambdoidal suture. The form of this bone is said by anatomists to have some resemblance to the Greek letter Λ

(*lambda*), from which circumstance its articulating suture derives its name. It is a very important bone in the study of phrenology. It contains internally the cerebellar fossa—the bed of the cerebellum; and on its external surface the transverse ridges, occipital spine, and spinous process are situated; the latter projection is sometimes mistaken for the organ of Philoprogenitiveness.

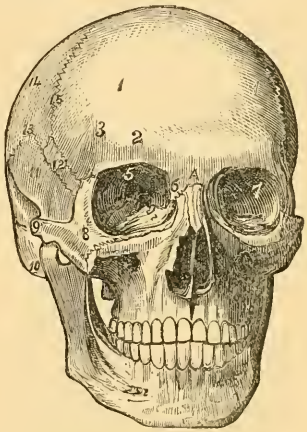


Fig. 16.—Front View of Human Skull.

1, Point of ossification of the frontal bone; 2, Superciliary ridge; 3, Temporal ridge; 4, External angular process; 5, Supraorbital ridge; 6, Internal angular process; 7, The orbit; 8, Malar bone; 9, Zygomatic arch; 10, Mastoid process; 11, Temporal bone; 12, Upper portion of the great wing of the sphenoid bone; 13, Squamous suture; 14, Parietal bone; 15, Coronal suture; A, Frontal sinus.

The frontal bone (1, fig. 14) forms the forehead and the vaults of the orbital cavities, and it unites to the parietals by the coronal suture. Its upper posterior part is not fully

developed at birth, and a space between it and the parietal bones is uncovered with bone in consequence ; this space is called the fontanelle, or vulgarly the opening of the head.

There are two points of ossification in the frontal bone ; they are situated at the upper and outer angles of the forehead, and at the most convex parts of the bone. In addition to these points, the following should be specially attended to :—The superciliary, supraorbital, and temporal ridges, and the internal and external angular processes.

The Sphenoid bone resembles a bat with extended wings, and is situated at the anterior portion of the base of the skull. It wedges in between all the other bones, and supports them, like the key-stone of an arch. The lesser wings are about an inch broad, triangular in shape, and extend laterally and upwards between the frontal and temporal bones, their tips coming in contact with the parietal bones, thus making up a part of the external form of the cranium, and the anterior sides of the angle form part of the orbital cavities.

The Ethmoid is a small sieve-like bone, which is situated at the anterior inferior part of the base, behind the nose, and is covered by the bulb of the olfactory nerve in the living head. In a phrenological point of view it is unimportant, and may be passed over without further notice.

In the order of development the brain is formed first, and the skull is afterwards moulded to it. The skull first appears in the fœtus as a gelatinous membrane, and small particles of bone are deposited on its surface at different parts, which are called the points of ossification, and from them rays of bony particles proceed during the process of development.

The points of ossification in the frontal and parietal bones are often referred to by phrenological writers, and the student should be acquainted with their situation and distinguishing features. Each of the parietal bones is developed from one point only, which is situated about the centre of the bone at its most convex part, and gives it a prominent appearance, and is therefore often called the parietal eminence. It is easily discerned in the living head by placing the palms of the hands upon the parietal bones from behind. If a line were drawn from the opening of the ear up to the middle of the crown, it would pass through the centre of the point of ossification, or thereabout.

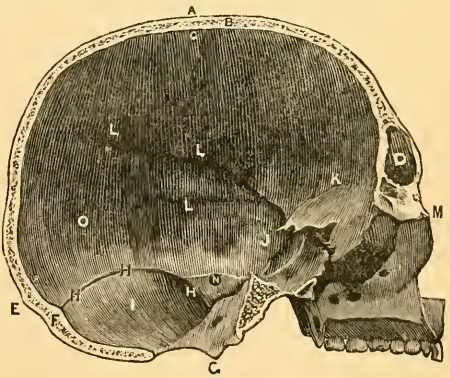


Fig. 17.—Section of Human Skull:

Cut down through the median line, photographed, drawn, and engraved, to a scale rather less than one-third the natural size, showing the exact thickness and amount of divergence from parallelism of the tables.

A, outer table; B, diploë; C, inner table; D, frontal sinus; E, external occipital spinous process; F, internal spinous process; G, mastoid process; H, H, H, internal transverse ridge, the situation of tentorium; I, cerebellum; J, middle fossa; K, orbital plate; L, grooves for arteries; M, nasal bone; N, internal meatus.

The skull consists of three layers; two compact plates, also called tables; and the diploë, a network of bony tissue, between them. The two plates are not exactly parallel to each other, but the divergence is slight—not exceeding one-sixth of an inch, except at the frontal sinus—and no difficulty is felt by the experienced phrenologist in ascertaining the form of the brain from the shape of the head, for the parts of the skull which are generally thickest are much the same in all persons. The thinest parts are at the orbital plates, and the squamous portions of the temporal bones; and the thickest is along the median line; especially from the top of the brow to the end of the frontal bone, and from the crown to the foramen magnum.

The frontal sinus is a cavity caused by a separation of the plates of the skull at the roots of the nose, the inner angles of the eyes, and between the eyebrows. It is not the same size in every individual, neither is it in all cases uniform at each side of the median line in the same head, nor as to the extent of the area it covers, or the amount of divergence. I have lying before me two adult frontal bones, and a section of a skull, cut to show the sinus, and the sinus of each differs greatly in shape and size. One is of enormous dimensions, covering the organs of Form, Size, Color, Weight, Individuality, and Eventuality; while in the others, its area is limited to Form, Size, and Individuality. These differences really present a difficulty to the phrenologist in estimating the size of the organs covered by the sinus, although there are external indications which afford some data for calculating its form and dimensions. As a general rule, when the swelling is gradual, the sinus is uniform and moderate

in size, but when the external surface is very uneven, it is generally larger than ordinary. This rule, however, has its exceptions, and too much dependence must not be placed upon it. But difficult as it is to correctly estimate the size of the frontal sinus, this does not present an insuperable barrier in practical phrenology; inasmuch as the difference of the forehead in individuals when compared to each other is greater than the whole thickness of the skull at the sinus, even in extreme cases. From the prodigious size of the frontal sinus in the section of the skull just referred to, it may be taken as an extraordinary specimen, and the other two as ordinary cases. Now, the thickest part of the cranium in the former, measured by callipers at the largest part of the frontal sinus, is seven-tenths of an inch at the left side and five-tenths at the right side—a difference which no phrenologist could help observing, for it is caused principally by one small prominence which is shown on the surface. Both the latter are five-tenths thick at the sinus. I shall give the length of George Combe's forehead, from a perpendicular line drawn through the centre of the opening of the ear, to the most prominent part of the frontal bone, and compare it with the late Joseph Hume's and Rammohun Roy's, from measurements of accurate casts. Combe's measures four inches and six-tenths, and Hume's five inches and one-tenth, showing a difference of half-an-inch. The forehead of Rammohun Roy, the distinguished Orientalist, shows a still greater difference; it is five inches and four-tenths long, and eight-tenths longer than Combe's, being one-tenth more than the entire thickness of the skull at the thickest part of the aforementioned extremely large sinus.

From the want of uniformity in the frontal sinus, mistakes may be made in estimating the development of the organs in the region of its locality. Yet, notwithstanding, a long forehead is a surer sign of a large or an acute intellect than a short one, other conditions being equal.

The difficulty of estimating the size of the frontal sinus has been one of the principal arguments used against Phrenology, and it has been repeatedly advanced as sufficient to undermine the whole fabric. This only proves the unfairness of hostile opponents, and their intellectual short-sightedness. For, supposing it were impossible to form a correct judgment of the size of a few organs in the neighbourhood of the sinus, this fact would not invalidate the proofs of the remainder. It would be just as sensible to assert that, because a blind person cannot see, he is therefore deaf, as to say, that in consequence of a difficulty of ascertaining the dimensions of Form, Size, and Individuality, the size of the organs that are situated in the moral and social regions cannot be estimated.

The frontal sinus rarely appears previous to the age of twelve. Therefore, the best proofs of the existence, and the size, and consequent power of the above organs, are to be obtained previous to, at, or shortly after this age.

In old age the brain is said to diminish in volume, and in some cases of disease to a great extent, which state is not indicated by a corresponding contraction of the head, in consequence of the inner table of the cranium receding only with the brain by separating from the outer table. In such instances an accurate diagnosis of the mental powers cannot be obtained from the form of the head. This circumstance

however presents no argument against phrenology, inasmuch as phrenologists limit the application of their art to subjects which properly come within its range. They do not pretend to describe the mental traits of the very aged, nor of those afflicted with chronic insanity, or any other kind of mental derangement from cranial, configuration.

In measuring the size of heads the thickness of the muscular integuments should be estimated—for some persons have fat, flabby heads, and some have very lean heads, while the craniums of others are moderately covered with flesh; but the greatest difference in thickness is generally found in the temporal muscle, which can be easily distinguished by placing the fingers on each side of the forehead immediately above the zygoma, and then requesting the person to move his or her jaws as in chewing. All that is required of the manipulator, is care and deliberation.

Dr. Noble says, "The fact touching the parallelism of the encephalon and the outer head is but seldom controverted; and, when it is so, it is seen to be for some temporary purpose. It is taught not only by those who admit, but by those who reject, the physiology of Gall. Thus, Cuvier states that 'The brain moulds itself in the cavity of the skull, which *it fits exactly* in such a manner that knowledge of the bony part gives us information at least of the *form of the exterior of the brain.*' Magendie says that, 'The only way of estimating the volume of a brain in a living person, is to measure the dimensions of the skull; every other means, even that proposed by Camper, is uncertain.' Sir Charles Bell, in his 'Anatomy,' also observes that 'The bones of the head are moulded to the brain, and the peculiar shapes

of the bones of the head are determined by the original peculiarity in the shape of the brain.' Dr. Gordon, in his day, notoriously the most virulent opponent of Gall's doctrine, states, in an article written by him, which appeared in the forty-ninth number of the 'Edinburgh Review,' as follows :—'But we all acquiesce implicitly for the present in the proposition (familiar to physiologists long before the age of Gall and Spurzheim), that there is, in most instances, a general correspondence between the size of the cranium and the quantity of the cerebrum ; that large heads usually contain large brains, and small heads small brains.' More recently, in the 'Cyclopedia of Anatomy and Physiology,' it is observed in the article CRANIUM :—'A comparison of the external and internal surfaces of the cranium establishes the fact, that there is a general correspondence of the two, as far as regards those parts which are in contact with the periphery of the brain.'"—*The Brain and its Physiology*, pp. 17, 18.

CHAPTER VIII.

THE BRAIN AND NERVES.

ADAPTATION is the great regulating law of nature. In all cases, in ascending from a lower to a higher order of existences, we find where new functions are manifested, there are additional instruments, suitably adapted to the performance of these functions.

A vegetable possesses an inherent power of growth, renewal, and reproduction, which it puts forth under suitable conditions. It circulates the fluid and the nutritive elements, necessary for its sustenance, that it is supplied with; but, should the spot of earth in which it is planted not yield sufficient nourishment, it cannot feel its wants, and if it could, it has not power to go in search of food or drink, but can only indicate its requirements by decay and death.

An animal, too, has the power of growth and renewal, and of reproducing its kind—these are called the vegetative powers. It also perceives when it requires nourishment —by the sensations of hunger and thirst; it feels pain and enjoys pleasure, and it tries to rid itself altogether of the former, and to obtain, increase, and perpetuate its enjoyment of the latter. And thus, by its sensations and volitions, manifests two essential attributes of mind, and it is supplied

with the necessary organs that fit it for the exercise of these higher endowments. This is characteristic of a great variety of the lower orders of animals; but I shall only cite the vertebrate class to illustrate the principle.

The bony framework of animals supports the body and protects the vital organs, and is also necessary for locomotion. The muscles are adapted for motive power, and are consequently suitably attached to the bones for moving them in every requisite manner. They are flesh ropes, admirably suited for simple and combined movements, but have no power of motion in themselves. They are the mind's instruments by which it exerts its power of volition; but they have no direct communication with the mind, therefore another class of instruments is requisite to convey to them the motive impulses; these are the Brain and Nerves, which are the special instruments of the mind, on which it is as dependent for manifesting its attributes, as the bones and muscles are for power of motion.

It does not become the phrenologist to indulge in speculations regarding the essence of mind. It is desirable that he should neither plunge into the bottomless depths of the unknown nor soar into the regions of fancy, but that he rigidly keep on the plane of matter of fact. His sphere of action is the attributes of mind as manifested through the medium of the physical organism, and the instruments by which it immediately acts; hence, a general view of the nervous system and its functions should form a subject of his study, though this is not indispensible.

The following outline of the anatomy and physiology of the Brain and Nervous System will be useful to the non-

professional reader, and all that is required for understanding the principles of phrenology. Those who desire a more comprehensive treatise must consult the writings of authors who treat specially on the subject.

"The nervous system communicates to the muscles their energy of action, and to all the sentient parts of the body their power of feeling. By the rapidity of its action, and its extensive distribution through the body, it establishes an instantaneous communication between the most distant parts. It is chiefly by this system that animals are connected with surrounding nature, and there is no part of their economy which is more indicative than this of the condition of the whole organization, or of the grade which an animal occupies in the scale. The nervous system has been detected in every division of the animal kingdom, and almost in every class, and it is everywhere connected with sensation and motion. Its general form corresponds with that of the body, being short and disposed in a circular manner in the short round bodies of most of the radiated and molluscous animals, and having a narrow and extended form in the more lengthened trunks of the articulated animals and the vertebrata."—*Comparative Anatomy*, by R. E. Grant, M.D., F.R.S.L., p. 179.

Another writer says, "The nervous system consists of a *central part*, or rather a series of connected *central organs*, named the *cerebro-spinal* axis, or *cerebro-spinal centre;* and of the *nerves*, which have the form of cords connected at one extremity with the cerebro-spinal centre, and extending from thence through the body to the muscles, sensible parts, and other organs placed under their control. The nerves form

the medium of communication between the distant parts and the centre ; one class of nervous fibres, termed *afferent* (incarrying) or *centripetal*, conducting impressions towards the centre ; another, the *efferent* (outcarrying) or *centrifugal*, carrying material stimuli from the centre to the moving organs. The nerves are, therefore, said to be internuncial in their office, whilst the central organ receives the impressions conducted to it by the one class of nerves, and imparts stimuli to the other, rendering certain of these impressions cognizable to the mind, and combining in due association, and towards a definite end, movements, whether voluntary or involuntary, of different and often of distant parts."—QUAIN'S Introduction.

We have here, in a brief and general way, the uses and functions of the nerves, very lucidly set forth. Quain, it will be perceived, divides the nervous system into nerve-cords and nerve-centres, and into incarrying and outcarrying nerves. Other anatomists divide it into *nerves of sensation* and *nerves of motion*, and *ganglionary* or *sympathetic* systems. Dr. Spurzheim divides the nerves, with respect to their functions, into *vegetative* and *phrenic* nerves—that is to say, those which preside over and administer to vegetable life, and those that execute the behests of the mind.

These divisions are all useful, and each of them may be really said to embody the others. Ganglions are nerve centres, and these terms may, therefore, be used synonomously. The nerves called by Quain incarrying nerves, are the nerves of sensation ; and those he names outcarrying nerves, are the nerves of motion ; and Spurzheim includes both of these classes in the term phrenic nerves, and those

which he calls vegetative nerves embrace the ganglionic or sympathetic system.

It is desirable to recognize the following particulars :— *First*, the elementary substance of the nerves ; *second*, their structure and origin ; *third*, the form and structure of ganglions and plexuses ; *fourth*, the cerebro-spinal cord and its nerves ; and *fifth*, the brain and the nerves which proceed from it.

The nerves are composed of a white fibrous substance (misnamed medullary), and of an ash colored or grey pulpy substance, which consists of nucleated cells or corpuscles of various forms, and differing in size from $\frac{1}{200}$ to $\frac{1}{3000}$ of an inch in diameter. The functions of these substances have been the subject of much speculation, and have given rise to different opinions ; but the views most generally adopted at the present day, are *that the grey substance presides over intellectual functions*, and the *white over the power of locomotion.* Drs. Gall and Spurzheim took a different view, they considered "the *grey substance* to be the *nourisher of the white*, and that both are necessary to produce an instrument adequate to form a particular function."

Nerves are whitish cords, made up of numerous tubular filaments, running parallel, and varying in thickness from $\frac{1}{2000}$ to $\frac{1}{24000}$ of an inch, which are invested in a cellular membrane. If a skein of silk were covered with a layer of paper, and cut in two, it would be a very good illustration of a nerve—the paper representing its investing membrane, and the threads of silk the fibres. There are 40 pairs of nerves—9 cranial and 31 spinal. They are spoken of as originating in the brain and spine ; but this is not the case.

Wilson says, "Each nerve is developed in the precise situation which it occupies in the body, and with the same relations that it possesses in after life. Indeed, we not unfrequently meet with instances in anencephalous fœtuses where the nerves are completely formed, while the brain and spinal cord are wanting."—*Anatomist's Vade Mecum*, 7th ed. p. 433.

"There are many anatomical descriptions to be found in books, of acephalic monsters, of the more perfect animals, and of the human kind, where the nervous system, notwithstanding the absence of the brain, was quite perfect. That nerves may exist without a brain is therefore established beyond the sphere of doubt." "The nervous system *is therefore not an unit, but consists of many essentially different parts*, which have their own individual origins, and are mutually in communication."—*Anatomy of the Brain*, by Dr. SPURZHEIM, pp. 13, 14.

Ganglions are knots or swellings, of irregular form, containing a quantity of grey matter, which appear on the sensory and sympathetic nerves. Physiologists hold different views respecting the uses of the ganglions generally, but all consider them necessary to the sensory functions, and for uniting the viscera in a bond of sympathy. Dr. Spurzheim says, "They abstract the parts they furnish with nervous energy from the influence of the will. They also originate nervous fibres; and serve further as points of communication between different nerves. Lastly, as the existence of a nervous fluid is not impossible, nay, as in all likelihood such a fluid does exist, the ganglions may probably aid in its secretion or evolution, and modify its circulation or distribution."

A plexus is a nervous network, which is formed by the nerve filaments diverging and interlacing, or weaving one with another, then converging and re-uniting again to form a cord as before. In all of these interlacements, or plexuses, there is a quantity of grey matter, as in the ganglions.

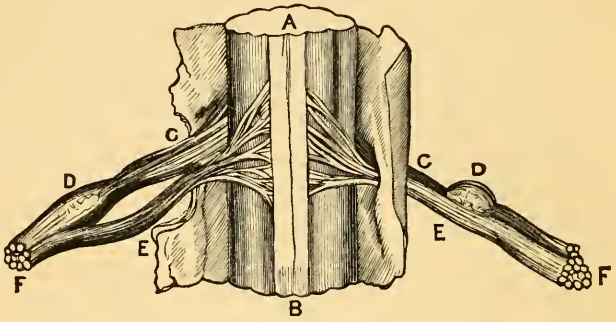


Fig. 18.—Anterior View of the Section of the Spinal Cord.

A, B, the spinal marrow divided into lateral portions; C, the sensory nerve rising from the posterior lateral division; D, ganglion of the sensory nerve; E, the motor nerve which takes its rise from the anterior lateral division; F, union of the sensory and motor nerves. These nerves proceed to their destination blended together in one common sheath.

The spinal cord (fig. 18) fills the cavity of the vertebral canal, and is divided into two similar lateral halves by an anterior and a posterior fissure, each half having three columns. Thirty-one nerves proceed from each side by two roots, one root proceeding from the anterior column, and the other from the posterior (C, E, fig. 18). The anterior roots give rise to the motor nerves, and the posterior roots to the sensory nerves. On each posterior root a ganglion is formed,

from which proceed several fibres (D, fig. 18), then the motor and sensory roots unite and become indistinguishably blended in one common sheath, and are thus distributed to the parts of the body which they are intended to serve, sending off in their course numerous branches, and gradually lessening in size, until their terminations cannot be detected by the unassisted eye, as may be perceived from the fact, that no motion can take place without a motor nerve, nor pain be felt without a sensory nerve; and that a prick on the human body with the finest pointed needle gives pain, and therefore enters into a sensory nerve.

With regard to the origin of the nerves, Dr. Spurzheim states, the principle laid down by Dr. Gall and himself to be, "that no nerve originates in the brain, and that every nervous part has its own origin, so that the nerves can no more be derived from the brain than can the various nervous pairs from each other."—*Anatomy of the Brain*, p. 70.

A knowledge of the brain and nervous system, as I have previously remarked, is not indispensible in the study of phrenology, but it is an excellent qualification for meeting the arguments of captious opponents. Persons well acquainted with the anatomy of the brain might, if so disposed, offer many objections against phrenology, that in reality have little or no bearing on the subject, but yet might make an unfavorable impression regarding the science on the minds of those who heard or read their remarks, and such as a phrenologist would be incapable of removing unless he understood the nature of the objections; which he could not do, if he were not acquainted with the structure of the brain.

Anatomy and physiology have a necessary connection, and must ever go hand-in-hand, and although phrenology is purely an inductive science, which rests on observation and experience, and well-attested facts, and although its proofs are practical more than theoretical, and physiological rather than anatomical, yet, it must be clearly shown, that the two latter are in perfect unison.

Previous to Gall's investigations into the structure of the brain, its anatomy was studied without reference to its functions, and names were given to its various parts according to their appearance and resemblance to particular objects, and in some instances after the names of men. The study of the anatomy of the brain, naturally a dry subject, is thus rendered less interesting than it would have been had its parts been named with reference to the offices they perform; and few people care to put themselves to the trouble of becoming thoroughly acquainted with its structure. But students of phrenology must not allow difficulties to deter them. The nervous system generally should form a subject of their study; for although the size of the mental organs, and their consequent capacity for action, can be inferred from the contour of the head, these only form a part of the great whole of the mind's instruments. I shall not, however, weary by an unnecessarily minute description, but will give a mere outline.

The brain and spinal cord are invested with three membranes. The outer one is firm and strong, and is called the *dura mater* (hard mother), from a supposition of the ancients that it was the parent of all the fibrous membranes of the body. It sends forth a process that dips down between the

hemispheres, named the *falx cerebri*, or falciform process of the dura mater, in consequence of its great resemblance to a sickle; it is narrow in front, broad behind, and has a sharp curved edge below, and attaches in front to a process of the ethmoid bone, and behind to the tentorium cerebelli. The dura mater serves as a lining to the skull, and firmly adheres to it. Immediately beneath the dura mater is the *arachnoid*, a serous membrane, so named from its resemblance to a spider's web. The next is the *pia mater* (soft mother); it is an areolar, vascular membrane, composed of innumerable blood-vessels, and it dips into the sulci, furrows, and covers the entire brain.

The encephalon or brain fills the entire cavity of the skull, and consists of many parts, which are composed of white and grey nervous substances. Each part either forms a distinct centre, or a medium of communication between the centres. The three principal portions are the MEDULLA OBLONGATA (long marrow), the CEREBELLUM (little or after brain), and the CEREBRUM, or brain proper.

The *Medulla Oblongata* is situated at the top of the spinal cord, and is a continuation of it. It is rather conical in shape with its broad end upwards, and is about 1·3 inches in length. It is divided into two symmetrical lateral columns, by two vertical fissures, the anterior and posterior median fissures, and each column is subdivided by shallow grooves into three smaller cords, consisting of what are called the *corpora pyramidalia*, *corpora olivaria*, and the *corpora restiformia*. "These cords," says Quain, "according to Gall, are made up of the primitive or formative fibres of the cerebrum and cerebellum; for, if they be traced upwards,

the anterior pyramids and the corpora olivaria will be found continuous with the fibres which are expanded into the cerebral hemispheres, whilst the posterior pyramids (usually called *corpora restiformia*) are evolved into the lobes of the cerebellum."—*Elements of Anatomy*, 3d ed., p. 684.

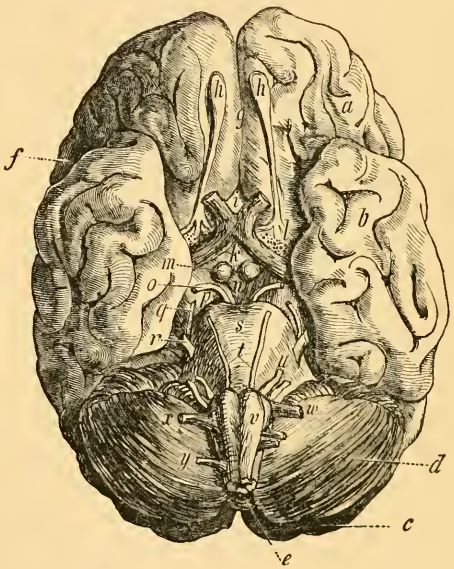


Fig. 19.—Base of the Human Adult Brain.

a, anterior lobe of cerebrum; *b*, middle lobe; *c*, posterior lobe, appearing behind the cerebellum; *d*, hemisphere of the cerebellum; *e*, lower extremity of the medulla oblongata; *f*, fissure of Sylvius; *g*, longitudinal fissure; *h*, *h*, olfactory bulbs; *i*, optic commissure; *l*, three roots of olfactory process; *m*, corpora albicantia; *o*, third pair of nerves; *p*, the crura cerebri; *q*, fourth nerve; *r*, fifth pair; *s*, pons varolii; *t*, sixth pair of nerves; *u*, seventh pair; *v*, anterior view of the pyramidal bodies; *w*, and the two below are the eighth pair; between *w* and *v* is the olivary body; *x*, *y*, two roots of ninth pair of nerves.

Figure 19 is a representation of the base of the encephalon divested of its membranes, showing the anterior portion of the medulla oblongata, the *pyramidal bodies*, the *oliviary bodies*, and a small portion of the *restiform bodies*, the inferior surface of the cerebellum and cerebrum, the *pons*

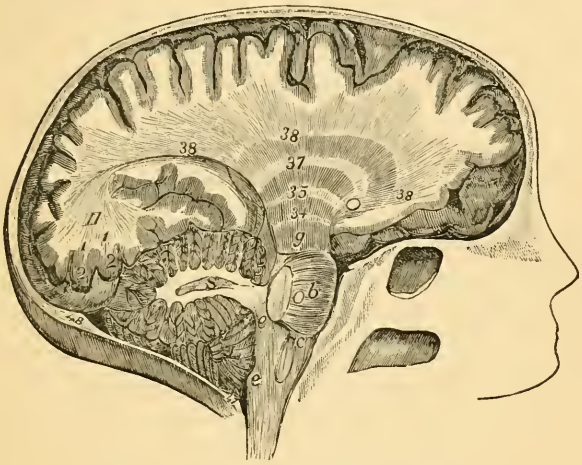


Fig. 20.—Section of Skull and Brain.

The incision is made in the right side on a line with the orbit, and passes vertically through the cerebral and cerebellar hemispheres. The two lines bounding the circumference represent the two tables of the cranium, drawn proportionately wider apart than nature to show the diploë. *e, e*, section of the corpora restiformia; *c*, section of corpora pyramidalia; *b*, the pons varolii; *g*, one of the crura of the cerebrum; 34, 35, 37, 38, 11, are the white divergent fibres of the crura in their passage from the corpora pyramidalia upward through the pons varolii, thalami optici, and the corpora striata, which ultimately terminate in the cerebral convolutions. The dark masses between 34-38, represent grey matter; 47, 48, situation of the cerebellum within the cranium; *s*, corpus dentatum.

varolii, and the *crura cerebri*. Crura (legs) are here used to denote bundles of nerve fibres which proceed from the me-

dulla to the grey substance of the cerebellum and cerebrum, as seen issuing from the *pons varolii* in their passage upward (fig. 20, G, 34–38).

The *Cerebellum* occupies the base of the posterior part of the cranium behind the ears. Its under surface is convex, and rests in the occipital fossa; and the sides of its upper part ascend to a level with the transverse ridge of the occipital bone, but the centre rises a little higher towards the median line. It is divided into equal lateral hemispheres, the division being formed behind by a fissure which receives the *falx cerebri*, and in front by a deep cleft that lodges the medulla oblongata. It is composed of white and grey matter, the latter being spread over the entire surface in considerable thickness, which is folded in numerous parallel laminæ placed vertically with their edges uppermost, imparting a streaked appearance externally, and, on a section, a tree-like aspect, well branched and covered with foliage; hence it is named *arbor vitæ* (tree of life). In each hemisphere there is a ganglion (an oval mass of grey matter) called the *corpus dentatum* (*s*, fig. 20), which, according to Gall, is a ganglion of increase to the formative fibres of the cerebellum. The two hemispheres are united by the *pons varolii*.

"The pons varolii is a comparatively small portion of the encephalon, which occupies a central position on its under surface, above and in front of the medulla oblongata, below and behind the crura cerebri, and between the middle crura of the cerebellum, with all which parts it is connected. The substance of the pons varolii consists of transverse and longitudinal white fibres, interspersed with a quantity of

diffused grey matter. The transverse fibres, with a few exceptions, enter the cerebellum, under the name of the middle peduncles, and form a commissural (or connecting) system for its two hemispheres. The longitudinal fibres are those which ascend from the medulla oblongata into the crura cerebri, augmented, it would seem, by others which arise within the pons from the grey matter scattered through it." —QUAIN.

The cerebellum is separated from the cerebrum by a strong membrane (the *tentorium*, a tent), which is attached at each side to the margin of the petrous portion of the temporal bone, and behind to the transverse ridge of the occipital bone. It supports the posterior lobes of the cerebrum, and prevents their pressure on the cerebellum. In leaping animals the tentorium forms a bony tent. The cerebellum bears no fixed relative proportion to the cerebrum, but differs greatly in individuals. In the adult the former varies in size in the ratio of from one to six or eight of the latter; but in infants the cerebellum is much smaller in proportion to the cerebrum, being one to thirteen or fifteen. This is an important fact.

The *Cerebrum* is divided longitudinally into two hemispheres; and anatomists, for the purpose of facilitating their descriptions, arbitrarily divide the hemispheres into three transverse lobes—anterior, middle, and posterior—though in reality there is no such division. The anterior or frontal lobe rests on the roof of the orbits, and is distinguished from the middle by a slight cleft, called the fissure of *Sylvius*. The middle lobe dips into the middle fossa of the cranium, and extends posteriorily to the petrous portion of the tem-

poral bone. The posterior lobe rests on the tentorium, and entirely covers the cerebellum in man; but in the inferior animals it only covers a portion of the anterior part.

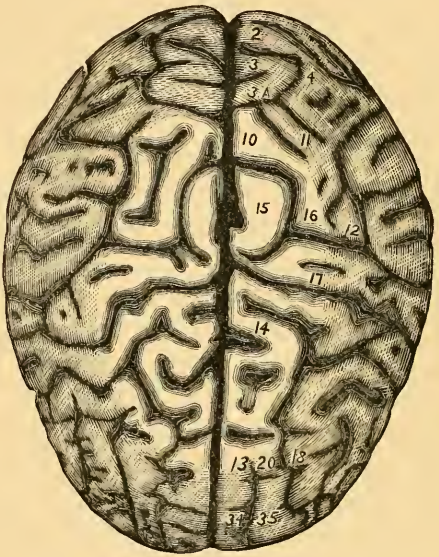


Fig. 21.—The Human Brain as seen from its Upper Surface.

(The numbers show the situation and relative positions of some of the mental organs as mapped on the Model Bust).

The surface of the cerebrum is formed into a number of tortuous eminences or *convolutions* (fig. 21), between which there are sulci, varying in depth from half-an-inch to an inch. They appear to have been formed with a view of getting the largest superficial area in the smallest possible space, thus increasing to a considerable extent the corticle, or grey pulpy

substance, that is so essential to the manifestations of mind. When the convolutions of the cerebrum and the laminæ of the cerebellum are unfolded, they measure, according to Baillarger, 670 square inches. The number and depth of the convolutions are greatest in the human brain, and gradually diminish in the lower grade of animals as they descend in the mental scale.

Fig. 22.—Side View of the Human Brain.

On parting the hemispheres a little at their upper surface with the fingers a broad band of white substance (*corpus callosum*) is seen to connect them. The corpus callosum is a thick layer of medullary fibres passing transversely between the two hemispheres, and constituting their *great commissure*. It is about three inches long, and is situated nearer the anterior than the posterior margin of the brain. There

are, also, the anterior and posterior commissures which assist in uniting the hemispheres. If a superficial incision be made through the corpus callosum on either side of the *raphé* (seam) at the median line, two irregular cavities will be opened, which extend from one extremity of the hemispheres to the other—these are the lateral ventricles, from which may be seen the superior surfaces of the *corpora striata* and *thalami optici* (the superior and inferior cerebral ganglions).

The *Corpora Striata* are situated within the white matter of the anterior lobe. They are pyriform in shape, and their external surface is composed of grey matter, but internally the grey and white substances are intermixed, producing a striated aspect, from which circumstance the name striated bodies is derived. Immediately behind these are the *thalami optici*, two ovoid masses of grey and white substance embedded in the middle lobes; behind them, and below the posterior part of the corpus callosum and the cerebral peduncles, four small rounded eminences project, composed of white matter without and grey within, named *corpora quadrigemina.*

The object I have in view in this cursory description of the brain, is to show, that it is an aggregate mass of distinguishable parts, each performing its own function, but all being necessary for the complex manifestations of mind, for which purpose they are all united; and the medulla oblongata is the grand junction between the cerebro-spinal centres.

The student should now be prepared to appreciate the following interesting description of the structure of the brain by Quain.

"The cerebral hemispheres are considered by Gall as resulting from an expansion or evolution of the fibres of the medulla oblongata, which he therefore terms primitive, or formative fasciculi.

"*Diverging Fibres.*—The fibres of the anterior pyramids may be traced upwards to the margin of the pons, where they become somewhat constricted. From the inner border of each, some fibres pass across the middle sulcus, and mutually change place, or decussate; those of the right-side passing to the left, and *vice versâ*. If an incision, a line or two in depth, be made through the pons, so that one lateral half of it may be turned upwards, the fibres of the pyramid will be observed to pass into a quantity of grey substance lodged in the interior of the nodus encephali (pons). In this situation the fibres diverge and separate, and are also considerably increased; at the upper margin of the pons they become continuous with the crus cerebri. Here an additional increase is derived from their passage through the grey substance lodged in the interior of the crus, after which they proceed through the inferior cerebral ganglion (*thalami optici*), and in the next place through the superior one (*corpora striata*), being successively increased and rendered still more divergent, until finally they reach the anterior convolutions. The corpus olivare contains within itself a small ganglion; its fibres pass without any decussation into the grey substance lodged in the cerebral protuberance (pons), where, like the pyramids, they receive additions, after which they pass into the crus cerebri, of which they form the posterior and inner part. Continuing their ascent, after being increased in the locus niger, they pass through the thalami

optici, and thence into the corpora striata, receiving additions as they radiate through each, and finally continue upwards into the convolutions at the summit of the hemispheres, and backward into those of the posterior lobes. Previously to entering the thalami optici, some fibres of the corpus olivare have been observed to turn inwards, so as to give to the tubercula quadrigemina their medullary investment, and also to unite with those of the opposite side, to form the valve of Vieussens. Finally the diverging fibres traced up, as has been pointed out, through their successive steps of increase, terminate in the grey substance of the cerebral convolutions.

"*Converging Fibres.*—Another order of fibres may be observed quite distinct from those above noticed, and taking a different direction. These are called 'the converging fibres' as they commence at the peripheral terminations of the preceding set, and pass from without inwards to the middle line, so as to connect the lateral parts, and to bring them into relation with one another; on which account they are called commissures. The anterior and posterior commissures are formed in this way, as is also the corpus callosum; though the greater number of the fibres which compose the latter are transverse, those towards the extremities are oblique."—*Elements of Anatomy*, 3d ed., pp. 701–3.

The sympathetic system still remains to be noticed, though this might be dispensed with. The sympathetic or ganglionic nerve is composed of a series of ganglions united to a cord which runs down each side of the spinal column, and gives off branches to the viscera, by which these parts are brought in union with the medulla oblongata; and it also

establishes a sympathetic relation between the different visceral organs.

We have in the anatomy and functions of the brain and nerves a complete system of communication between the mind and every part of the body, and with the external world through the medium of the senses.

The sensory nerves, like sentinels, are posted all over to give warning of the approach of danger. The nerves of special sense receive impressions from external objects, adapted to their constitution, and transmit them inwards to certain parts of the brain fitted to receive them, where they become sensations, and from whence they are transmitted to the knowing and reflecting faculties, and there give rise to perceptions. Hence objects are seen, sounds heard, odours smelt, and flavors tasted. The other nerves of this class are designated nerves of common sensation; they are ramified over the entire body, to give the mind due notice of the bodily requirements, impending dangers, inconveniences felt, and injuries sustained, and are the media of numerous pleasures and pains.

The nerves of motion are the instruments which convey that stimulus or nervo-vital influence from the brain to the muscles which incites them to action. They are divided into voluntary and involuntary. The voluntary are under the control of the will, and obey the mandates of our volitions —such as walking, talking, eating, drinking, and writing; but many organs perform their functions involuntarily. Respiration goes on, the heart pulsates, the blood circulates, and the liver secretes bile, whether we will or not; hence these organs are regularly supplied with their appropriate

stimulus through the involuntary nerves at all times, whether we sleep or wake.

CHANGE OF FORM OF THE HEAD IN PROCESS OF GROWTH.—If the student has mastered the foregoing principles, he will be able to enter upon the study of their practical application; but if he has not, then he should not proceed further until he does. In addition to what has been advanced on this division of the subject, I may state that the form of the head at birth is very different from what it is at maturity, and the laws of its progressive change and development ought to be understood. The practical phrenologist is often consulted with regard to the mental tendencies of the young, and his advice is sought on their government and their capabilities, and the pursuit of life they are most fitted for. He must therefore be able to calculate from the size and form of the head at any age, the probable change that will take place at any period afterwards in the process of development to maturity.

The late Mr. James Straton, of Aberdeen, gave considerable attention to this department, and published the result of his observations and inductions in a valuable contribution to the *Zoist*, January 1851, and afterwards in a pamphlet ("Researches in Cerebral Development"). He measured the cubic contents of the heads of thousands of individuals of all ages, from seven days old up to fifty years, for the purpose of ascertaining the progress of development. He also noted the gradual change of form of the head, and published a lithographic descriptive plate, showing the usual form of an infant's head at seven days of age, the change pro-

duced at seven months, at seven years, and at fifty years. I think it advisable, in deference to the memory, indefatigable industry, and eminent ability of Mr. Straton, to make the following unabridged quotation, and thus permit him, though dead, to state his own case.

"As the disputed period of maturity has chiefly been between the sixth and sixteenth year, I have been, if possible, more particular with that than any other time. None of the following averages for that, and very few for other periods, are based on less than one hundred cases of each sex at each age given, and frequently on many more. A detail of the vast mass of data collected is of course quite impossible here, I must therefore limit myself to a table of general results.

RANGE OF SIZE OF MALE.			
Age.	Min.	Max.	Average.
7 days	28 to	48 ...	38
7 mons.	55 to	95 ...	75
1 year	62 to	106 ...	84
2 "	66 to	114 ...	90
3 "	71 to	122 ...	96
4 "	75 to	129 ...	102
5 "	78 to	135 ...	107
6 "	81 to	140 ...	111
7 "	83 to	143 ...	114
8 "	85 to	146 ...	116
9 "	87 to	148 ...	118
10 "	88 to	151 ...	120
12 "	92 to	158 ...	125
15 "	95 to	165 ...	130
18 "	99 to	171 ...	135
21 "	102 to	177 ...	140
30 "	106 to	184 ...	145
50 "	110 to	190 ...	150
Increase	82	142	112

RANGE OF SIZE OF FEMALE.			
Age.	Min.	Max.	Average.
7 days	25 to	43 ...	34
7 mons.	50 to	86 ...	68
1 year	55 to	94 ...	75
2 "	60 to	105 ...	81
3 "	64 to	111 ...	87
4 "	67 to	116 ...	92
5 "	70 to	122 ...	96
6 "	73 to	126 ...	100
7 "	76 to	129 ...	102
8 "	78 to	131 ...	104
9 "	80 to	134 ...	106
10 "	81 to	136 ...	108
12 "	83 to	142 ...	113
15 "	86 to	147 ...	117
18 "	90 to	153 ...	122
21 "	94 to	158 ...	126
30 "	97 to	165 ...	131
50 "	100 to	170 ...	135
Increase	75	127	101

"Except the ages, all the numbers represent cubic inches.

"Of the many particulars brought into view by the table, I can at present notice only a few of the most obvious.

First.—"The size of the female ranges less than that of the male head at all ages.

Second.—"Progressive size is obvious from birth upwards.

"Though I have not gone beyond fifty years in the table, it must not be from that inferred that there is no advance in any individual or class of cases after the fiftieth year; on the contrary, my tables show progress to a later period, but after the *thirtieth* year the advance on the average is so slow as to justify the supposition that in many individual cases there is no progress. And farther, a very slight preponderance of either the higher or lower sections influences the averages to some extent; they therefore require to be balanced with great care, and verified again and again before certainty is obtained.

Third.—"The progress is rapid at first, and gradually becomes more and more slow as age advances.

"The size during the first week is doubled in the seventh month, and the progress is rapid during the whole of the first year. In the second, third, and fourth years, it is about six inches per annum. The rate then sinks to five, four, and three inches, and after the seventh year there is a very uniform increase of two inches till the twentieth or twenty-first year, after which the advance is very slow.

"It curiously enough appears to be the fact that that rate of increase may be expressed by a simple formula, which is very easily remembered—namely, that the size of the head within seven days after birth is doubled in the seventh

month, tripled in the seventh year, and quadrupled in seven times seven years.

Fourth.—"The rate of progress is in proportion to the size of the head. The smallest female, advancing from 25 at birth to 100 inches at fifty years, is similar to the largest male advancing from 48 to 190 inches.

"This uniform rate in proportion to the size of the head renders it easy to say of any head of either sex, at any age, what it has been, and what it in average circumstances will be, at all ages embraced by the table.

"Knowing the average rate of increase of all sizes at all ages, we are now in condition to grapple with the important questions of influence of circumstances in modifying either by increasing or diminishing the rate in individual cases. And we have seen by the instance of the ragged-schools noticed in classification of sections, that circumstances do exercise a very important influence, not on individuals only, but on whole classes or groups of cases.

Fifth.—"In consequence of the rate of increase being in proportion to the size, the laws of grouping are different at different ages: the cluster is constantly lengthening on the scale, so to speak. The 'range'—that is, the difference between the smallest and the largest heads at the respective ages specified in the columns. This at the earliest female age is only 18 inches, at the latest age of the male the group is 80 inches of the scale.

"Here again let it not be inferred that the table shows the very largest and smallest heads to be found; though either larger or smaller cases are very rare, they do sometimes occur.

There are male heads in existence considerably above 200 inches; and, on the other hand, there are both male and female cases (idiots) so low as 20 to 30 inches at twenty or thirty years of age; but the table shows a normal range which is very rarely exceeded.

Neither must it be inferred that the rate of increase of all parts of the same head is to the same extent, and during the same period of time. This leads us to the element of shape at all ages, a subject which I can only touch in the meantime, and leave for future consideration.

Shape or Form.—The most efficient way of conveying a few general ideas of the change in form, or development of parts which takes place in the progress from infancy to maturity, is by an illustration, and fig. 23 is given for that purpose. The figure shows four geometrical outlines of the lateral perpendicular section of the average male head, on a scale of about one-third the natural dimensions. The figures represent the head at the respective periods of seven days, seven months, seven years, and fifty years of age. With very slight consideration it will be seen that the shape is gradually changing from the earliest to the latest period. In the infant outline the larger mass of brain is seen to be upward and backward from the external opening of the ear. In the adult the shape is very much the reverse of the infant, the larger portion of brain being upward and forward from the ear. These characteristics are so constant and so marked, that I think it hardly possible to compare any infant with a mature head and not recognize the general distinctions. The growth or expansion of the different parts may be

judged of by the spaces or distances between each of the outlines, particularly between the inner and outer figures.

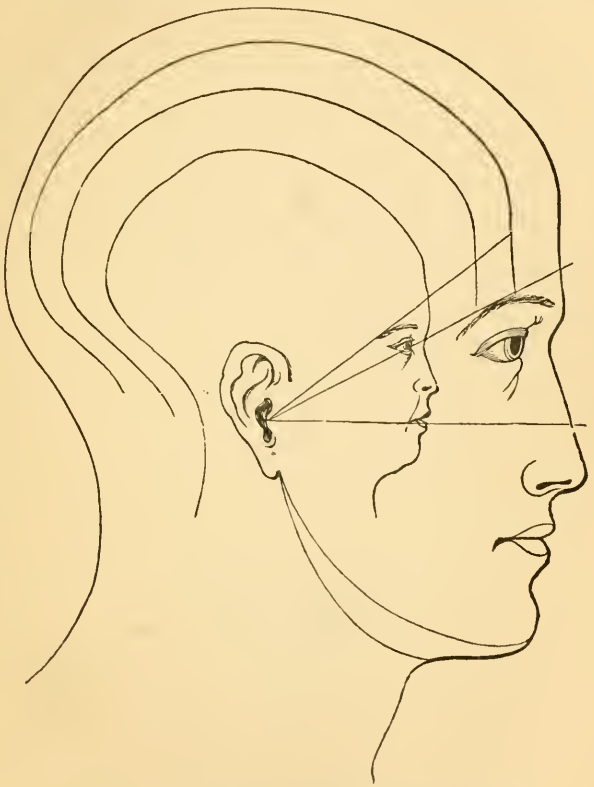


Fig. 23.—Changes from Infancy to Maturity.

Upward and forward it will be seen that the intervening space is greater than backward. I may farther add, that the parts upward and backward from the ear attain maturity

at or before the thirtieth year, but the upper and fore parts increase, in a portion of the community, at least till past the fiftieth year.

"One of the greatest, if not the greatest, practical benefit of the table we have obtained, is, that in it we are furnished with a scale suitable for every purpose for which we require one—a scale graduated by nature, each term the language of science, of definite, positive, invariable, meaning and known value—a scale equally suitable to express the development and power of the whole cerebral mass, however large, and of each part, however small."—*Zoist*, vol. viii. pp. 442–5.

CHAPTER IX.

PRACTICAL APPLICATION OF PRINCIPLES.

HAVING explained the principles on which the science of phrenology is based, and presuming that the student has made himself acquainted with them, I now solicit his attention to an exposition of their practical application; before proceeding to which, however, I may observe that the term *faculty* is used to signify a mental power, which requires a particular physical organ as a medium of communication with the external world; and that it is dependent on the size and healthy condition of its organ for manifesting itself energetically or feebly, normally or abnormally. The distinguishing features of a fundamental faculty are :—

First.—That it may exist in one class of animals and not in another.

Second.—It may be more or less active and energetic in the sexes of the same species.

Third.—It may, or may not, be suitably proportionate to the other faculties of the same individual.

Fourth.—Its manifestations may appear or disappear earlier or later than those of the other faculties.

Fifth.—It or its organ may act or rest, be asleep or awake,

be paralyzed or healthy, by itself—that is, it may be in a directly opposite state from the other organs.

Sixth.—When in mental diseases there is only a single faculty that suffers, or only one that remains in its perfect integrity.

All the organs are double—one being situated in each hemisphere of the brain; but I shall treat of them as though they were single.

How to begin an Examination to Analyze Character.—The first point to be considered is organic quality, and to calculate its influence on the mental manifestations; *second*, the proportion the temperaments of the individual bear to each other, and their influence on the activity of the faculties—as a rule, the superiority of the nervous temperament over the abdominal may be estimated at 15 per cent.; *third*, the size of the head must be taken into consideration, whether it be large, or small, or medium, or an average size of the race, class, or family to which the individual belongs, according to his or her age; *fourth*, the form of the head and its particular type, and the relative size of the principal divisions, must be correctly calculated, and in which divisions the greatest quantity of brain exists; *fifth*, the absolute size of the individual organs, and their relative size in proportion to each other; *sixth*, the organic tendencies, and the modifying influences of groups of organs acting in combination; and *seventh*, to take into account circumstantial influences, such as training, education, the exercise of particular faculties, and the general associations and surroundings of the person from birth upwards, and every thing and

circumstance calculated to produce a modifying effect on the mind.

Before a correct judgment can be formed of the comparative size of any person's head, the dimensions of an average sized head of the nation and type to which the individual belongs should be known ; also, the extreme range between the smallest and largest adult heads of both sexes, and likewise at the periods of childhood, youth, and maturity. The best guide on this point is experience.

It has been ascertained by discriminative observers that the Scotch have the largest heads in Britain, and that the inhabitants of the north of England have larger heads than those of the south. These facts are corroborated by hatters. All the most extensive manufacturers and dealers testify that the largest hats are sent to Scotland and the north of England. The average size of an English male head is about 137 cubic inches, and the female 120 ; the Scotch male 147, and the female 130.

Mr. Combe suggested the following rules for measuring the size of the head :—*First*, to measure the length by callipers from the occipital spine to Individuality ; *second*, from the opening of the ear to the occipital spine ; *third*, from the ear to Individuality ; *fourth*, from the ear to Firmness ; *fifth*, from the organ of Destructiveness on the one side, to the same organ on the other side ; *sixth*, from Cautiousness to Cautiousness ; and *seventh*, from Ideality to Ideality. These rules are useful ; but the points of measurement are too limited. Only one is given for height, whereas there ought to be three—Firmness, Veneration, and Benevolence ; for these parts vary greatly in altitude. The points given to

find the breadth should not be fixed and unalterable. The form of the head must be considered, and the measurements made at such parts as are most calculated to yield correct results. Four measurements should be taken, as a general rule, though two or three may be sufficient for some heads.

A correct observer may form a tolerably accurate idea of absolute and comparative size by sight, and by feeling with the hand; but heads differ so greatly in shape, that the most expert manipulator may be deceived; therefore other aids are necessary. In all cases, the practical phrenologist should have indelibly fixed in his mind an ideal picture of the most perfectly formed human head, in connection with the highest mental endowments, and be able to recall it before his interior vision at any time, with which to compare the individual he may have to examine. My model head is well adapted to this end, and will render the student invaluable aid. It has been got up with great care, and is an admirable specimen of beauty of form, and perfect equilibrium of parts; and the nearer any person's head approaches to it, in general outline, the nearer it approximates to my ideal of perfection. Mr. L. N. Fowler has published a fine specimen of a model bust; but the base of the head is too narrow, and the middle lobe is not sufficiently deep, which destroys its symmetry, and militates against its utility as a standard model.

Some phrenologists take objection to a model head, except it be moulded after their own national type. I consider the objection untenable; for example, if we take the Scotch type for our model, before it could be used advantageously in comparison with the heads of other nations, the

peculiar traits of the Scottish character ought to be known, and the particular Scottish family of which it was a model—whether of the Highlander or the Lowlander, or whether of the east, west, or north coasts, or the border counties—because there are several varieties, all included roughly under the term Scotch, besides the two great typical divisions, Saxon and Celtic. If we were to take our pattern from any of the Circassian varieties, it would be open to similar objections. The best course, therefore, to pursue, in my opinion, is to view the whole human family as being imperfect in physical form, and to select the best European specimens as a basis; and then to balance the unequally developed parts in accordance with phrenological principles, and the laws which constitute perfection of mental organism.

No system of measurement is thoroughly reliable but such as will give the cubic contents of the head; and I consider the best method for attaining this result is that adopted by Mr. Straton, as explained in "Contributions to the Mathematics of Phrenology." His mode of procedure in developing his system, was to first find the cubic contents of a large number of skulls and busts by water measurement. For this purpose he used a wooden cistern ten inches square inside, and eight deep, in one side of which there was a piece of plate-glass graduated to a scale of inches and tenths, the zero being fixed at five inches from the bottom. The cistern was filled with water up to zero, and a cast or skull, as the case might be, immersed in it with its top downwards, until the water reached the transverse sutures, and the opening of the ears; and the quantity of water it displaced being equal to its cubical measure,

was shown on the scale—every tenth of an inch of rise of the water indicating ten inches cubic measure. After he obtained the cubic contents of a skull by this means, he next measured it by callipers in various ways repeatedly, until he was able to mark off points of measurement on any head or skull that, when properly manipulated, yielded within a few inches of the same results as the water measurement. In this way he ultimately developed a system by which any person with ordinary ability may easily find the cubic measurement of any living head.

The following figure showing the points of measurement, and the rules and examples of their working, are copied from the *Zoist*, vol. iii. pp. 427–9.

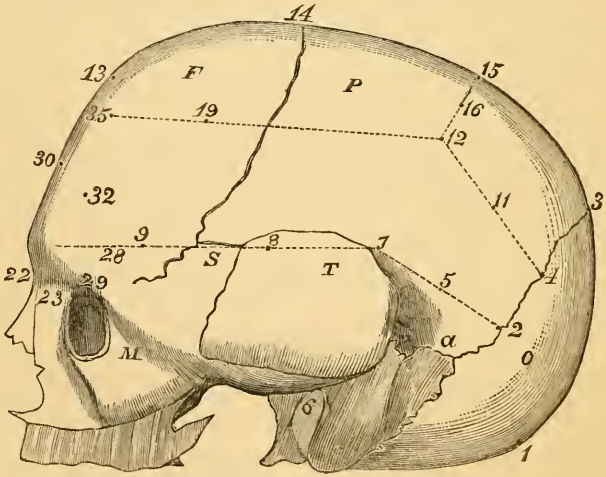


Fig. 24.—Skull showing Straton's points.

BONES.—O, the *occipital*; P, the *parietal*; F, the *frontal*; N, the *nasal*; M, the *malar*; S, the *sphenoid*; and T, the *temporal*.

SUTURES.—The *Lambdoidal* articulates the occipital to the parietal bones from 3 to *a*, and to the temporal from thence downwards.

The *Sagittal* unites the superior margins of the parietal bones, along the line 3, 15, 14.

The *Squamous* joins the temporal bones to the sphenoid and the lower margin of the parietals.

The *Coronal* touches the sphenoid at each side, and unites the frontal to the parietal bones.

The *Transverse* connects the frontal with the nasal at 22, with the malar at 29, and others more deeply seated.

POINTS OF MEASUREMENT.

1. Occipital spine.
2. Posterior margin of P at half the distance from *a* to 4.
3. Termination of the sagittal suture at the occipital bone.
4. Middle of the posterior margins of the parietal bones.
5. Middle of the straight line from 2 to 7.
6. External opening of the ear.
7. Middle of a straight line from 6 to 12.

On a straight line, joining 7 and 28, place—

8. Equidistant from 7 and 9, and
9. Equidistant from 28 and the parietal bone.
11. Middle of the line from 4 to 12.
12. Centres of ossification of the parietal bones.
13. On the middle line of F, equidistant from 14 and 22.
14. Middle of the coronal suture.
15. Middle of the sagittal suture.
16. Half the shortest line from 12 to the sagittal suture.
19. One-third the horizontal line from 35 to 12.
22. Nasal vertex or middle of the transverse suture.
23. Internal angular processes of F.
28. Commencement of the temporal ridge.
29. Junction of M with the external angular proeesses of F.
30. Centre of the forehead.
32. Middle of the line joining 29 and 35.
35. Centres of ossification of F.

General Directions.—Having selected a suitable cast or skull, mark with a pencil or bit of chalk the points 4, 12, 29, and 35; join these by lines and mark the points 11, 19, and 32. Finish the pointing in the following order:—1, 3, 15, 30, 22, 23, 28, 7, 2, 8, 9.

In measuring, the callipers is the only instrument required. In practice, I have found the time and labor very much abridged by a peculiar construction of the instrument. It has a scale attached, on which the inches and tenths "imperial standard," are marked the full length; these can be accurately read as soon as the instrument is adjusted to the intended points of measurement.

Mr. Straton considers that the human head or cranium may be measured as an irregular cube with almost perfect accuracy, and gives the following formula as the most simple and accurate, and applicable to every variety of case:—

TO FIND THE AVERAGE

Breadth.—Add the measurements from 5 to 5, 7 to 7, 8 to 8, and from 9 to 9; divide the sum by 4; the quotient is the average breadth.

Length.—The measurement from 3 to 30 is the average length.

Height.—Add the measurements from 6 to 16, from 1 to 3, and from 22 to 13; divide the sum by 3; the quotient is the average height.

Multiply the height by the breadth, and the product by the length. The result represents the cubic measure.

EXAMPLE I.

4.1 + 2.3 + 2. = 8.4 ÷ 3 = 2.8 Height..... 2.8
4.5 + 5.1 + 4.6 + 3.8 = 18 ÷ 4 = 4.5 Breadth 4.5

3.60
9.0

12.60
From 3 to 30 ... 6.5 ... Length 6.5

6.300
75.60

Cubic inches..... 81.900

EXAMPLE II.

5.6 + 3.2 + 2.6 = 11.4 ÷ 3 = 3.8 Height..... 3.8
5.4 + 6.4 + 6.2 + 5.4 = 23.4 ÷ 4 = 5.85 Breadth ... 5.85

.190
3.04
19.0

22.230
From 3 to 30 ..... Length 8.4

8.8920
177.840

Cubic inches.....186.6320

TABLE OF CUBIC MEASURE.

HEADS.	Height.	Breadth.	Length.	Cubic M.	Proof.
Dr. Gall.....	3·9	5·8	7·5	170	174
Rev. Mr. M.	3·9	5.5	7·7	165	165
R. B. Sheridan	3·8	5·6	7·8	165	165
R. Cordonnier	4·0	6·2	7.2	178	180
Rajah Rammohun Roy	3·8	5·8	8.4	185	190

Mr. Straton divided the head into Anterior, Posterior, Lateral, and Coronal regions; and he viewed these divisions as being inverted cones, having their bases resting on the medulla oblongata; and laid down rules for finding their cubic contents. This was a very praiseworthy attempt to advance practical phrenology by the certainty of mathematical precision, instead of being dependent to such a great extent on estimative art. He does not, however, appear to me to have succeeded. His rules are far from being reliable in their application, although the principles embodied might be made the basis of a more perfect system of measurement than he developed; and may be capable of being improved so as to be practically useful; but I must pass them over for the present without further comment.

The form of the head should be next ascertained, and also whether or not it is equally balanced in its principal divisions. For the latter purpose the head should be viewed profile-wise, and divided into three vertical sections, corresponding with the anterior, middle, and posterior lobes of the brain, by drawing perpendicular lines from the centres of the zygomatic arch, B, and the mastoid process, C (fig. 25). The intellectual faculties are situated in the anterior section. The height of the head must be divided next into basal and coronal regions, by a plane drawn from the middle of the forehead, between the organs of Causality and Eventuality, backward along the inferior margin of Ideality and Cautiousness, terminating at the organ of Concentrativeness. The moral and religious sentiments and reasoning faculties are situated above it; and below it, the animal propensities and perceptive faculties.

Mr. Combe committed an error in dividing the coronal and basal regions. He recommends a plane to be drawn above the organs of Causality and Cautiousness, instead of below them—which is in direct violation of the rule laid down by Dr. Spurzheim; and his writings having been used as the chief text-books on phrenology in the United Kingdom, this error has been extensively disseminated, and other authors have copied and propagated it, which is much to be regretted. In his "System of Phrenology" (5th ed., revised, vol. i., p. 144) he says, "The coronal region of the brain is the seat of the moral sentiments; and its size may be estimated by the extent of elevation and expansion of the head above the organs of Causality in the forehead, and of Cautiousness in the middle of the parietal bones. When the whole region of the brain rising above the organ is shallow or narrow, the moral feelings will be weakly manifested; when high and expanded, they will be vigorously displayed." Similar instructions are repeated in the 9th edition of his "Elements," published in 1862, and, I suppose, continue to be given in every succeeding edition. Now, Ideality and Sublimity are sentiments proper to man, and belong to the refining and perfecting group, and must be classified in their entirety with the moral sentiments—a fact which Mr. Combe inculcates; yet, by dividing the coronal and basal regions as he directs, the line passes along the superior margin of the above organs, and thus reduces the height of the coronal region—which makes good heads appear only moderate, and bad ones look hideous. By this mode of measurement, an equally balanced head is a rare phenomenon. When six-tenths of

an inch are deducted from the top of the head for thickness of muscle and skull, many people are made by it to have pitiable looking heads, who, notwithstanding, manage to lead tolerably decent lives.

Mr. Frederick Bridges, of Liverpool, has neither followed Dr. Spurzheim nor Mr. Combe in this particular, but takes a middle course. He divides the sentiments and propensities by a plane passing through the centres of ossification of the frontal and parietal bones, or the middle of Causality, Ideality, Sublimity, and Cautiousness; thus splitting these organs in two, and placing the upper half in the coronal region, and the under half in the basal; and he further adds to the difficulty, by first imagining that there should be as great a mass of brain above the line as below it, and then positively asserting this to be a fact in nature. He has moulded a model bust in accordance with this idea as a standard of perfection.

Dr. Spurzheim considered the length of an organ to be its distance from the medulla oblongata, because all the nervous fibres forming the white substance of the brain take their rise from it; and as the medulla oblongata is situated nearly on a direct line midway between the ears, he fixed on the external opening of the ear as being the most central and best point to measure from for finding the length. In "Phrenology in connection with Physiognomy," (pp. 31, 32) he says, "In this view of the head (profile) lines may also be drawn from the external opening of the ear to the different points in the circumference of the head, in order to learn in what direction the brain in the mesial line is most developed." Mr. Combe also gives similar instructions; so

do Messrs. Fowler and Wells, and almost every other writer and lecturer on phrenology.

The orifice of the ear is certainly a valuable point of indication of particular types of head, and from which to measure the relative size of the coronal and basal regions; but it is not a reliable point from which to find the length of the organs situated at each side of the mesial, or, as it is commonly called, median line, as I shall irrefutably demonstrate.

If the length of the nervous fibres arising from the medulla oblongata constitutes the length of the organs in the median line, the point of the head we fix upon as representing its situation should hold an unalterable relation to it; for, if the external point—the orifice of the ear, for instance—varies in its relative position with the medulla in different individuals, it cannot be relied on; *and this is actually the case.* There are at present lying before me upwards of thirty adult skulls, and the disparity between the relative position of the external opening of the ear with the situation of the medulla is sufficiently palpable to observation to satisfy the judgment of any person of ordinary discrimination without further proof; but, having measured them carefully, I am convinced of the fact by demonstrative and irrefragable evidence.

In measuring these skulls, my mode of procedure was to place them with their bases uppermost, and then to put a suitable straight edge, level across them, at the anterior margin of the foramen magnum, and to measure the distance between it and the centre of the orifice of the ear. By this means I found a variation of nine-tenths of an inch, which is within four-tenths of the entire length of the medulla.

The orifice of the ear of one skull dips down one-tenth of an inch below the anterior margin of the foramen magnum, and that of another is eight-tenths above it; in a third case these parts are on a level, and the remainder vary at all points within the extreme range. A greater difference may exist between some skulls than exists in the aforementioned —for they were not collected as specimens of the special

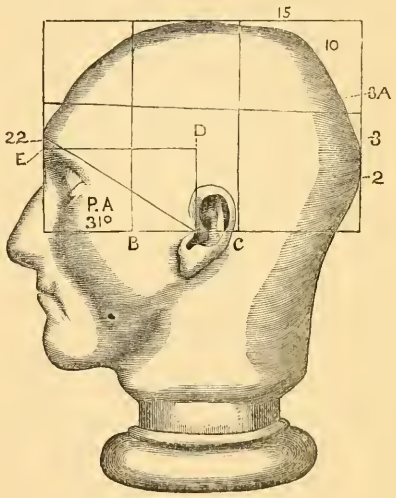


Fig. 25.—Elihu Burritt (phreno-metrical angle 31°).

feature now under consideration. Another fact of not less import than the preceding, is, that the relative position of the ear with the superciliary ridge varies greatly in different persons. *The ears of some individuals are situated two inches lower down the cheek than those of others.* Even both ears in the same person are not in all cases on the same

plane—for example, the right ears of Mr. Combe and his brother Dr. Andrew Combe were higher up than their left ears. I possess correct and beautifully executed casts of the head, skull, and brain of Dr. Combe, and this peculiarity is very marked in all of them. If half a dozen or a dozen persons were arranged in a column, and viewed in profile, a great difference would, most probably, be observed in the position of their ears.

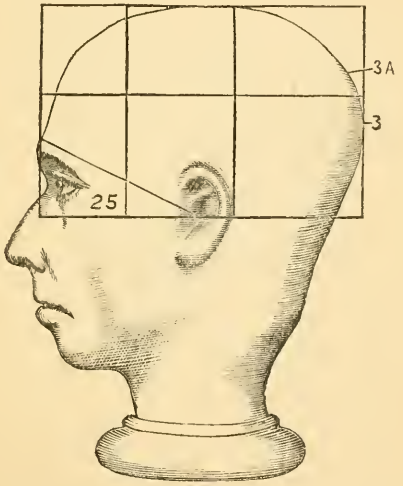


Fig. 26.—George Combe (phreno-metrical angle 25°).

A good plan for accurately determining the relative position of the ears of any number of individuals, is to draw an imaginery plane—or, better still, a real one—from the centre of the superciliary ridge backward parallel with the axis of the orbits, as E, in fig. 25 ; then to calculate the distance

the orifice of the ear is below this plane. I strongly urge students to accustom themselves to observe the position of the ears of persons—for to know the difference of individuals in this particular is of the first importance in practical phrenology.

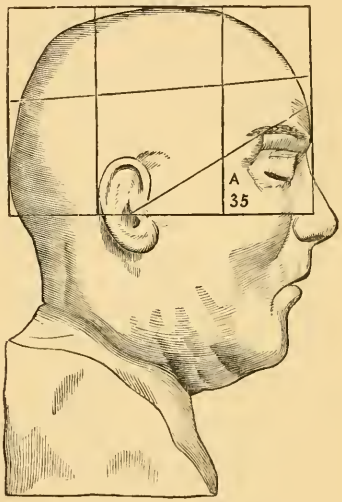


Fig. 27.—William Palmer (phreno-metrical angle 35°).

I make no apology for differing from those eminent authorities, Dr. Spurzheim and Mr. Combe; but, at the same time, I feel duly impressed with the necessity of the cause of my disagreement being well founded in stern matter of fact and logic.

The cast of Mr. Combe, taken from nature, shows him to have been one of the highest of the intellectual and moral

type, which strictly harmonizes with his character. The organs in the median line are decidedly large, and so is the organ of Conscientiousness. Fig. 26 is an accurate engraving of the cast of Mr. Combe, drawn to a scale of one-fifth the natural size.

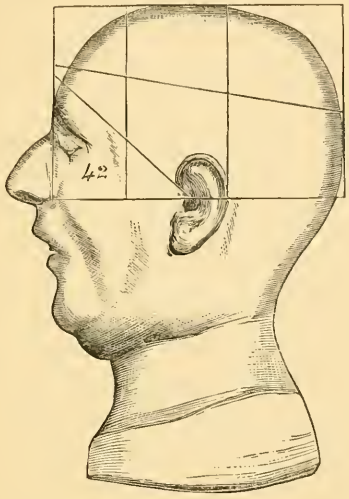


Fig. 28.—Dr. Pritchard (phreno-metrical angle 42°).

Figures 27 and 28 are also drawn to the same scale; they are from the busts of William Palmer and Dr. Pritchard, two of the greatest villains that ever disgraced humanity and finished their ignominy on the gallows. Their busts indicate mental organizations of the worst conceivable type.

A comparison of the busts of Combe, Palmer, and Pritchard, shows the unreliability and fallaciousness of Spurzheim's rule for measuring the length of the organs in the

median line. The following measurements with the callipers will make this clear:—From the orifice of the ear to the organs of Benevolence, Conscientiousness, and Individuality—

	Benevolence.	Conscientiousness.	Individuality.
Mr. Combe's bust measures ...	6·2	5·2	5·2
Wm. Palmer's	6·6	5·2	5·7
Dr. Pritchard's	6·2	5·1	5·6

Here we find the intellectual, highly refined, and philanthropic Combe actually comparing unfavorably with two notorious malefactors, who were almost destitute of moral principle. Palmer's organ of Conscientiousness is by this mode of measurement represented as being of equal length with Combe's, and his Benevolence four-tenths, and Individuality five-tenths of an inch longer. Pritchard's organ of Benevolence measures the same length as Mr. Combe's, and his very small, idiotic organ of Conscientiousness only a *tenth shorter*, and his Individuality *four-tenths longer*.

Both Palmer and Pritchard ought to have manifested more perceptive intellect than Mr. Combe, according to the above measurements; and Palmer much more charity, philanthropy and pity for suffering, and quite as keen perception of right and wrong, of justice and equity, and moral obligation! *I make these remarks with a full consciousness of the modifying effects of organs acting in combination.*

The sooner the practice of taking the orifice of the ear as a central point to ascertain length is given up the better; and I cannot too forcibly impress this fact on the minds of students. It was a source of difficulty and considerable annoyance to me for many years, and would have con-

tinued to be to this day if I had not learned to observe for myself, and to place more reliance on the teachings of nature, than fallible, though wise and good, men.

The reason of the above organs in Palmer and Pritchard measuring so long as compared with Mr. Combe, is the great difference of depth in the base of their brains, of which the opening of the ear is the external indication. A glance at the table (p. 166) and figures 26, 27, and 28, will make this clear. The distance below the plane drawn from the centre of the superciliary ridge to a perpendicular line passing through the centre of the opening of the ear in Mr. Combe is 2·0 inches; the distance below the same plane in Palmer is 3·2 inches—being 1·2 inches deeper than in Mr. Combe; and the depth of Pritchard's ear below this line is 3·0 inches—which is one inch deeper than Mr. Combe's. The length of the forehead from the vertical line drawn through the centre of the ear is, in Combe's bust, 4·3 inches; in Palmer's, 4·1 inches; and in Pritchard's, 3·5 inches. Again, from the point where these lines intersect in the bust of Combe to Benevolence, measured by callipers, is 5 inches, to Conscientiousness 3·7; in the bust of Palmer, from the same point to Benevolence 4·4, to Conscientiousness, 2·5; from the same point in the bust of Pritchard, to Benevolence is 4·5, to Conscientiousness 2·5. Here we have the case set forth in its true light. Mr. Combe is shown to have the organs in the coronal region much larger than the unfortunate malefactors. This fact would certainly be strikingly indicated by dividing the coronal and basal regions as recommended by Mr. Combe; but, what I am contending for, is, that either the orifice of the ear is not a reliable point

from which to find the length of an organ, or that length is not a measure of power. But length *is* a measure of power. Therefore, I repeat, that the length should not be estimated from the ear. Even if the situation of the medulla oblongata could be accurately observed in the head, it would not be commendable to draw radii to the median line in order to find how much the organs in that direction were developed. The desideratum is not so much to ascertain the length of medullary fibre, as the quantity of grey substance. This can only be approximated by calculating the peripheral expansion of the organs, individually and collectively; and the length of nervous fibre taken from any given point, is only useful in so far as it contributes to this result.

Comparative anatomy proves that animals which have the most highly convoluted brains are the most sagacious, and the human brain far transcends all others in this particular. It has also been observed, that individuals of the human species whose brains have had the greatest depth of cerebral convolutions, and the largest abundance of grey matter, have commonly manifested the most extraordinary mental power, when all other conditions were equal. Now there must of necessity be more grey substance in large heads than small ones, which are otherwise alike, inasmuch as it composes the external layer. These facts tend to prove that mental power is more dependent on the quantity of grey matter than on length of medullary fibre.

The superior surface of the pons varolii is about level with the base of the anterior lobe, and is a much better point from which to measure length than the medulla oblongata; as the aforementioned measurements of Mr. Combe, Palmer

and Pritchard prove. I prefer, however, the upper surface of the thalami optici, for the following reasons :—The bundles of nervous fibres which proceed from the medulla, named the crura cerebri, continue an upward course until they pass through this ganglion, then they rapidly diverge, and bend in all directions *en route* for the convolutions. A vertical line drawn from the orifice of the ear to the fontanelle, intersects the horizontal plane which divides the basal and coronal regions, at a part corresponding externally with the centre of the upper surface of the thalami optici, and forms the very best central point of measurement.

The length of the intellectual organs may be estimated from the vertical line rising from the centre of the zygomatic arch B (fig. 25) the length of the organs of the domestic feelings from the vertical line commencing at the centre of the mastoid process, C. The length of the organs in the coronal region is their altitude above the upper horizontal plane, and the distance below it to the base line drawn through the centre of the orifice of the ear, is the length of the organs in the basal region. The length of the organs in the lateral regions may be measured from the median line, for which purpose the head should be viewed from behind and from before.

To determine the size of the convolutions lying in the lateral regions of the head, "Dr. Cox," says Mr. Combe, "lays down two parallel planes, passing through the organs of Causality in each hemisphere, and directly backwards. The more the lateral convolutions project from these planes, the more do the organs in the sides of the head appear developed."—*Elements*, 9th ed., p. 40.

Whoever thinks it expedient to use Dr. Cox's method can

do so; but to measure from the median line is quite sufficient for all purposes.

The breadth and thickness of the organs are estimated according to the area of their peripheral expansion. These dimensions are considered to impart mental power. The thickness of the lateral organs may be reckoned altitudinally, and their breadth horizontally; the former dimensions constitute a portion of the height of the head, and the latter its length. In very low heads they will be thin, and in short ones narrow; in high heads thick, and in long ones broad. They may be thick and broad, or thick and narrow, or otherwise, according to the particular form of the head. The organs are not generally of an uniform thickness —the intermediate ones being sometimes thicker than those above and below them, and the converse. Although a long head is a common sign of intellectual acuteness, it is not an infallible one, inasmuch as the lateral organs may be very broad, and the middle lobe of the brain much longer, comparatively, than the anterior and posterior lobes. Many examples in illustration of this conformation might be given; but a comparison of the busts of Mr. Combe, Wm. Palmer, and Dr. Pritchard will suffice. The extreme length of—

Mr. Combe's bust is 8·3 inches...	Anterior lobe,	2·5 inches.
	Middle "	2·7 "
	Posterior "	3·1 "
Wm. Palmer's " 8·0 " ...	Anterior "	2·3 "
	Middle "	3·0 "
	Posterior "	2·7 "
Dr. Pritchard's " 7·5 " ...	Anterior "	2·1 "
	Middle "	3·1 "
	Posterior "	2·3 "

In analyzing these measurements, it will be seen, that while Mr. Combe's bust is three-tenths of an inch longer than Palmer's, it is three-tenths shorter in the middle lobe—or, in other words, the lateral organs of Palmer within the inner vertical lines are three-tenths broader than Mr. Combe's. Pritchard's bust shows a greater disparity—for, though it is *eight-tenths shorter than Combe's, the middle lobe is three-tenths longer!* Reader, especially note these facts, and apply their teachings in practice. I have casts from nature which would show a still greater difference in comparison with Palmer and Pritchard, than Mr. Combe's bust does.

Mr. F. Bridges claims to be the inventor of a very useful instrument for measuring the head in profile, the *Phreno-Physiometre.* It is intended to exhibit at one view in inches and tenths, the length and height of the head, the relative size of the basal and coronal regions, and the anterior, middle, and posterior lobes of the brain; also, how far the middle lobe of the brain dips below the frontal lobe. Figures 29 and 30 are engravings of the Phreno-Physiometre in principle, with improvements by myself. I name it, as improved, the Calliper Phreno-Physiometre.

The Calliper Phreno-Physiometre is a great improvement on the original instrument, and better adapted to the end it is intended to serve. It consists of an oblong square brass frame, enclosing a half-circle, with a central perpendicular pillar G, at the bottom of which there is a moveable pointer. The frame and the centre pillars are divided into inches and tenths, and the semi-circle into degrees. The horizontal bars A, B, and the two inner perpendicular bars D, E, are elastic cords attached to spring slides which

move on the frame. The outer perpendicular broad bars C, F, are made of brass, which are also attached to slides, and to each there is an arm (1, 2) which projects out at right angles with the frame, and is it constructed to move up and down by springs; and another moveable arm (4) projects from the perpendicular pillar. My improvements consist of

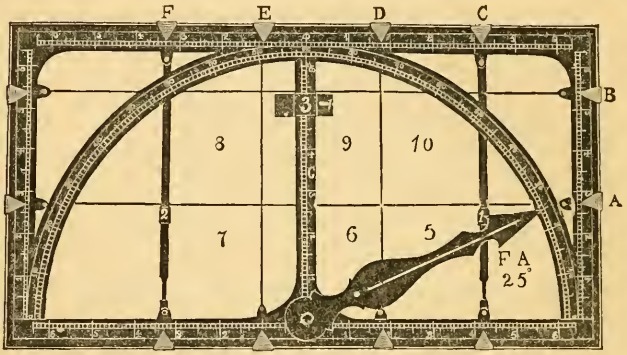


Fig. 29.—The Calliper Phreno-Physiometre.

the *projecting arms* and *centre pillar*. I was led to add them in consequence of the difficulty experienced in measuring the head correctly with the original instrument. In surveying, or running straight lines with the eye, two objects, holding fixed relation to each other, are used to find the position of a third; but Mr. Bridges ignores this rule in the construction and application of the Phreno-Physiometre; and only gives one object to find a second. This is a remarkable omission in one professing to teach the geometry of phrenology.

Instead of the Phreno-Physiometre being constructed to embrace the head behind, and in front, and at the vertex, with projecting arms fixed at right angles with the frame, to find the length and breadth of the head, as is the case with the Calliper Phreno-Physiometre, there are only the vertical and horizontal bars; and the manipulator has to adjust them

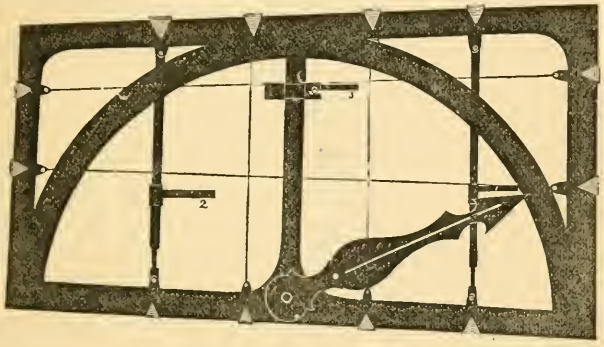


Fig. 30.—Perspective View (1, 2, 3 projecting arms).

by the eye to get these measurements. If human heads were square, this would not be very difficult to do; but they more nearly approach an oval—being shaped in numerous cases like a hen's egg—and the centres of the brow and the occiput generally project; therefore, to enable one to measure the length of the head accurately, by means of the vertical lines at the extremes of the instrument, they should be double, one fixed directly in front of the other (like the sights of a compass), and at right angles with the frame, so as to guide the eye in adjusting them to the most prominent parts of forehead and backhead. The same remarks apply to the upper

horizontal line or bar, which must be placed on a level with the most elevated part of the top of the head, to find its height. To do this correctly, the eye of the manipulator would require to be on an exact level with the head, and the horizontal bar would have to be adjusted so as to intercept the line of vision. But if the eye were to be either too high or too low, instead of the line of vision being level, it would be diagonal, and consequently the height of the head would be taken exactly as much over low, or over high, as the sight deviated from a level plane.

In applying the Calliper Phreno-Physiometre, the axis upon which the pointer moves must be inserted into the orifice of the ear, and the arm projecting from the centre pillar adjusted to the top of the head; then the horizontal bar, B, must be moved up to it, and the height of the head will be indicated in inches and tenths on both the frame and the centre pillar. Next the lower horizontal bar, A, must be adjusted to come immediately beneath the organs of Causality and Ideality, which will divide the head into coronal and basal regions, and show their relative size in inches and tenths. In the next place, the outer perpendicular bars, G F, must be arranged so that the arms projecting from them will embrace the head at the most prominent part of the brow and occiput; this will give the extreme length of the head, which will be recorded in inches and tenths on the frame. Then the two remaining perpendicular bars, D E, should be adjusted to divide the anterior and posterior lobes from the middle lobe, D commencing at the middle of the zygomatic arch, and E from the middle of the mastoid process.

We have seen that the relative depths of the base of the middle and anterior lobes of the brain differ greatly in individuals. This has an important bearing on the operations of the mind. The half-circle in the Calliper Phreno-Physiometre is constructed for measuring how much the middle lobe descends below the anterior. This is done by forming an angle, named the *phreno-metrical angle;* thus, if the pointer be made to point directly to the centre of the superciliary ridge, it will form an angle with the upper edge of the bottom of the frame, the size of which will be given in degrees on the semi-circle. The head must be kept perfectly erect while being measured, and the instrument ought to be held in such a position that the bottom of the frame will be parallel with the axis of the orbits.

Most murderers, and persons who have committed violent assaults, have had a large phreno-metrical angle. Burke's measured 32 degrees, Hare's 34, Bennison's 36, Mrs. Manning's 38, Palmer's 40, Bryce's 36, Müller's 33, and Pritchard's 42. On the contrary, the phreno-metrical angle of the highest moral type—the philanthropists and regenerators of our race—is much smaller, ranging from 22 to 30 degrees.

Mr. Bridges deserves credit for drawing special attention to the phreno-metrical angle; for in so doing he has done good service to practical phrenology. He has not, however, merited equal praise for carefulness in determining principles. He appears to form conclusions with inconsiderate haste, and from too small a number of facts. He ought especially to have avoided mistakes of this kind in giving the results of his observations and measurements of

the phreno-metrical angle. He asserts, without giving any data from which he draws his deductions, that 25 degrees is the average phreno-metrical angle of the human brain. Now, this angle varies in size proportionately with the length of the forehead; and a person having a short forehead will have a larger phreno-metrical angle than another with a longer forehead, if the relative depths of the middle and frontal lobes of the brain be the same in each; and it is larger in infants than in adults, and gradually lessens as the head matures; because the forehead develops more than the other parts, as a glance at fig. 23, indicating the progressive development of the head from infancy, will show.

The forehead of Mr. Combe's bust, measured by the Calliper Phreno-Physiometre, is 4·3 inches, and his phreno-metrical angle is 25 degrees. The middle lobe of the brain dips 2 inches* below a horizontal line drawn from the superciliary ridge. Dr. Pritchard's forehead was 3·5 inches, his phreno-metrical angle 42 degrees, and the dip of the middle lobe 3 inches. If Mr. Combe's forehead had been the same length as Pritchard's, with 2 inches dip of the middle lobe, his phreno-metrical angle would have been 31 degrees instead of 25. If Pritchard's forehead had been as long as Combe's, his angle would have measured 6½ degrees less than it did, or 35½ instead of 42. To multiply examples on this head would be superfluous. The above are sufficient to prove that the amount of dip of the middle lobe below the frontal cannot be inferred from a given size of phreno-metrical angle, unless the length of the forehead be

* In referring to measurement hereafter, I shall do so by simply stating the dip of the middle lobe.

given also. I named this to Mr. Bridges several years ago, and suggested the advisability of his publishing a scale, showing the exact increase and decrease of the angle at determined lengths of forehead, and stating from what length he formed his average of 25 degrees. He acknowledged the advisability of doing so, but has not yet carried out the suggestion.

The phreno-metrical angle, considered in connection with the length of the forehead, is of great value in determining the relative length of the organs of the perceptive faculties, and those at, and near to, the base of the cerebrum—a very important item in calculating organic tendencies. For instance, we have seen that, as a general rule, the animal propensities of a child preponderate greatly over the intellectual faculties, and that the latter grow much more than the former, as the head matures. The results of observation point to this fact as the reason of the great impulsiveness and irascibility manifested by the child, as compared with a person of mature years. After the perceptive organs of the young increase in relative size, and the intellect expands, they acquire more power of self-control and gain command over their animal feelings; consequently, more stability of character results. A man, therefore, whose phreno-metrical angle is large, and whose forehead is short, has a very unequally developed mental organism, and should be considered as only a big, unbalanced child, who may be expected to manifest childish follies, and an irritable, violent disposition.

A series of measurements are given in the following page showing the variation of the phreno-metrical angle of indivi-

duals having foreheads of unequal length, but being alike in depth of middle lobe; from which will be seen the rates of decrease of the angle as the forehead increases in length.

No.	Depth of Middle Lobe.	Length of Forehead.	Phreno-Metrical Angle.
1	2 inches	3·0 inches	33·5 degrees.
2	2 "	3.1 "	32·5 "
3	2 "	3·2 "	31·7 "
4	2 "	3·3 "	31·0 "
5	2 "	3·5 "	29·5 "
6	2 "	3·8 "	27·5 "
7	2 "	4·0 "	26·0 "
8	2 "	4·3 "	25·0 "
9	2 "	4·6 "	23·5 "
10	2 "	4·9 "	22·0 "

The difference of configuration of the human head indicates an almost endless variety. There are long heads, short heads, high, low, round, square, oval, broad, and narrow heads. There are heads narrow in front and broad behind, and others narrow behind and broad in front; some are broad at the base and narrow at the top; some wider at the top than the base; and others again are barrel-shaped—bulging at the middle. Many persons have long foreheads and short backheads, others quite the reverse. Some have receding, and others square, foreheads; while the upper part of some foreheads overhangs the lower portion. The female type is longer behind and shorter in front than the male.

The desideratum in examining a head is—to learn its particular form, and at which part the greatest mass of brain lies. If the intellectual region be relatively the largest, the tendency will be to intellectual pursuits; should the lowest portion of the forehead be most developed, a desire to know

facts, with power to remember them, and an aptitude for observation, will be manifested. If the upper part be the largest, there will be a tendency to reason, and to trace causation—to generalize, and classify, and invent; but if the middle portion preponderate in size, the tendency will be to observe phenomena, to chronicle events, and to learn history. When the base of the lateral regions is the largest in any individual, a desire for animal gratification will be felt; and when the middle portion bulges out, there will be a fondness for commercial enterprise and the constructive arts; but in cases where the upper lateral portion is in excess, refinement and perfection, and the beautiful and sublime, will be longed after. If the backhead be broad at the base, laterally, and narrow at the upper part, an aggressive, pugnacious, reckless tendency will be the result; but if the upper portion of this region be large and the lower little developed, the person will be timid, undecided, and apprehensive. In cases where the ears are low down the cheek, and the head is wide between them, irascibility and impulsiveness will be the result, and probably a tendency to violence and outrage. When the backhead is comparatively long, the person will have strong social feeling, ardent attachments, and fondness for friendly intercourse; but in those in whom it is short, opposite traits will be manifested. Where the coronal region is elevated and expanded, it gives a tendency to philanthropy and religious exercises, a love of truth, justice, and equity. Individuals whose heads recede much from the top of the brow backward over the crown or diminish in height, are not much to be relied on for integrity, veracity, and stability—though they may be

very charitably disposed, and prodigal in alms-giving; but in cases where the crown, and each side of it, are lofty, and the head slopes as it advances to the brow, the person will manifest decision of character, firmness of purpose, love of truth and justice, but not too great charitableness.

The preceding are a few of the prominent, and easily observed, differences of form, and the inferences that may be drawn from them in reference to *organic tendencies.* This branch of the subject will be treated more at length under the head of the effects of organs acting in combination.

Unequally balanced heads give rise to organic tendencies and characteristic individualism; but the mental peculiarities of persons who have equally balanced heads result, in a large measure, from *circumstantial influences;* as a very small weight turns a nicely equipoised balance, so does a trifling circumstance frequently change the character of finely balanced mental constitutions. When an object to which a faculty is related is presented to the mind, either through the media of the senses, or from the archives of the memory, it excites the faculty to action, produces an agreeable or disagreeable sensation, and a craving for satisfaction, which turns the nicely adjusted mental balance. The mental organs are governed by the same laws as the physical—activity increases the circulation. By this means adjacent organs receive an impulse, and are thereby often stimulated to lend their aid to the excited faculties, and combine with them for the attainment of a common object, in the hope of gaining something suited to their own gratification respectively. Suppose, for example, the organ of Acquisitiveness were to be brought into energetic action by the prospect

of gain, the adjoining organs of Alimentiveness, Destructiveness, and Constructiveness might receive an impulse in consequence of more blood circulating in their immediate locality, and their functions be thus brought into play. Alimentiveness might anticipate gratification in table luxuries in the event of increased wealth; Constructiveness would feel pleasure in making and fashioning, or in forming new plans; and Destructiveness in breaking all former bonds, vows, and resolutions that might happen to stand in the way. These allied powers might again in their turn enlist the aid of Approbativeness, Self-Esteem, Amativeness, Philoprogenitiveness, Hope, etc., and unless the intellectual faculties could call into action a different class of powers to overcome them, and restore the equilibrium, the mind would become a slave to the excited faculties. It is thus persons of equally balanced brains frequently become a prey to temptation.

Some folks pursue one course undeviatingly as though they moved in grooves; while others, like the sea which cannot rest, are ever unsettled and changeable. They go to church one evening, and to all appearance enter heartily into the devotions; on the next, they are in the ball-room "tripping on the light fantastic toe," and unrestrainedly enjoying the convivialities of the occasion. Their reading embraces novels, science, and history, fiction and matter-of-fact, poetry and mathematics, politics and theology. They get a little of everything, and, to the casual observer, appear learned in literature and art. They carry off honors in society from their aptness in accommodating themselves to any emergency, but they leave no in-

delible impress behind. They are versatile, and captivate with the smartness of their parts, but are neither deep nor profound, nor capable of grasping great principles or achieving mighty results, of comprehending the deep, dark abyss of mental grief or the extatic rapture of inexpressible joy. They can neither rouse the feelings by pathos, nor inspire the intellect with genius; consequently, they are soon forgotten after finishing their fitful state of existence. This train of thought reminds me of a laconic criticism by a late dear, amiable, and talented friend of mine on a public speaker, one of whose lectures we attended together. After leaving the lecture-room, I asked him what he thought of the lecture; he replied, "The points did not stick in—they were too finely drawn, and they doubled up." It is remarkable how some people impress the public mind, and earn enduring fame for a particular department of literature, science, art, politics or theology, with a very limited mental capacity. The reason is, they possess one or two leading traits, which give a bent to the mind; and they strike out a special course of action, and persistently pursue it during the whole period of their lives, and are repaid for their diligence by becoming authorities on the subjects of their favorite studies; although they may have, comparatively, but little acquaintance with numerous other branches of knowledge.

An infidel lecturer and author once remarked, that "If man had been created perfect, he could not have fallen." Now, for the sake of argument, looking at the cause of man's present imperfect state as an undecided question, I maintain, from a phrenological point of view, that this infidel assertion

is contrary to mental science, and diametrically opposed to fact. The preceding illustration of the effects produced upon equally balanced brains, or perfectly formed mental organisms, shows that, instead of perfection being a condition from which there could not be any divergence, it is the most likely state of mind to yield to temptation; and, therefore, if the Mosaic account of the creation and fall of man were a human invention, it proves the author to have been a correct observer, and far advanced in mental philosophy. The natural hereditary taint, or the doctrine of natural depravity, is equally a true interpretation of nature. The hereditary transmission of qualities from parents to children is an indisputable fact; and that children are affected by the mental state of their mothers during gestation, is equally certain. Now, the mental anguish of Adam and Eve after their degradation would naturally produce a degenerating effect upon the nervous system and mental organism of their offspring; thus accounting by the laws of our constitution, for the sins of parents being visited upon their unfortunate children. But, whether we accept or reject the doctrine of the fall by Adam's transgression, and the restoration by the crucifixion of Christ, the fact still remains, that man is imperfect, and that parents do propagate their constitutional qualities to their offspring. Another law of our nature is, that parents, by making self-improvement the business of their lives, persistently striving to improve their physical power and mental faculties, and abstaining from every thing calculated to act adversely thereto, may improve the constitution and mental condition of their childrren, the symmetry and comeliness

of their forms, and the quality and configuration of their brains.

The plan adopted by a cunning, ancient herdsman to alter the color of his herd is highly suggestive. An expectant mother, during gestation, might produce very beneficial results on the fœtus, by systematically carrying out certain well-known principles, a few of which can only be enumerated here. *First*, it is absolutely necessary that her mind during pregnancy be kept perfectly easy—free from fretfulness, worry, and anxiety, and from undue excitement of every kind. *Second*, she should be suitably dieted, both as to quantity and quality, and be temperate in all things. *Third*, she ought to take proper exercise, both for mind and body, and strictly obey all sanitary laws. *Fourth*, she ought to indulge in contemplations of the beautiful, the refined, the true, the just, and the perfect; to spurn from her, as she would scorpions, all impure, unholy thoughts, gloomy apprehensions, disordinate desires, vindictive and spiteful feelings; and to foster emotions of kindliness and beneficence, self-reliance, tender affection, and hopeful anticipation. *Fifth*, she should behold the most beautiful and sublime scenery, the loveliest objects, the most perfect forms in nature and art. *Sixth*, she should have ever before her mind's eye the best formed, highest type of human existence, and be guided in her conduct by the teachings and precepts of the best of her race. For this purpose, the mind naturally is led to Christ; for, whether we admit or deny his divine nature, we are obliged to acknowledge him to far excel all others in fitness, as an example. He is emphatically the Great Teacher. But I leave his divinity and teachings

in the care of divines, and content myself with drawing attention to the perfection of his physical form. The representation of the head of Christ is of the very highest moral type, and it matters little, in a certain sense, whether it is a correct delineation or not—for, if it is not, the artist has succeeded in producing a form of head which is in harmony with his character according to phrenological principles. I hesitate not to state, that when all the inhabitants of the earth are blessed with heads similar in conformation, the millennium will be nigh at hand. Daily contemplation on the form of Christ would alone produce a beneficial effect. (See engraving.)

Bumpology.—Phrenologists are often asked to feel such an one's *bumps*, as though heads were parcelled out in hills and valleys. After what has been advanced on equally balanced heads, it is hardly necessary to state that the idea of bumps is ridiculously erroneous. No sensible, experienced, practical phrenologist feels for bumps. He looks at the form of the head, and decides in what part the greatest mass of brain lies—whether in the anterior, middle, posterior, coronal, basal, or intermediate lateral regions, regardless of either hills or hollows. If one or more organs be large, and their neighbouring organs small, then hills and hollows are the inevitable result; but if all the neighbouring organs in any region be large, or small, there will be a general evenness of surface. Evenness is the rule in balanced heads; unevenness in unequally balanced craniums; and the characteristic tendencies of the latter are to be looked for in their organic conditions; the former in circumstantial influences

—which are the most difficult to estimate; training, education, companionship, place of abode, where reared—whether in town or country, in mansion or cottage—and also the profession, trade, art or occupation, must be taken into consideration. A great difference is made in the mental state of a person, by his being trained for the bar, pulpit, exchange, or editor's desk, or for the work-shop, quarry, or coal pit.

People, when about to consult their lawyer or medical adviser, prepare themselves for communicating every circumstance and symptom connected with their case; but their procedure is, in general, quite the reverse when paying a visit to a phrenologist. Instead of being communicative, many manifest a studied reserve, are terrified lest they should slip any word, or even give a look, whereby the manipulator might gain a clue to their particular characteristics; some even venture on a little deception to mislead. To students then, I say, Beware! There is an adage to the effect that, "Old birds are not to be caught with chaff," neither are old phrenologists to be caught in the net of strategy. Many times I have been amused by observing the "Fowlers caught in their own snares"—when the attempts to deceive revealed the true character, and the looks reflected the inward workings of the mind. In such instances, to feel the head is almost unnecessary. Read men's characters as written in their gestures, the lines inscribed on their countenances, the tones of their voice, the expression of their eyes and mouth, and be especially emphatic in delineating their prominent trait—the want of open frankness.

Talent has its seat in the intellect, and disposition in the sentiments and feelings. If the moral sentiments be

the largest, they will press the intellect into their service; but, if the animal propensities be the strongest, they will strive for the ascendency, so as to gain power over the intellectual faculties; and the individual so endowed will be prone to sensual indulgence, and will need to cultivate very carefully self-respect and moral power to resist temptation.

Phrenology does not enable even the most expert to predicate particular actions, but tendencies only. Neither is it a department of the science to treat on the essence of mind. Phrenologists believe mind to exist, and to be dependent on the brain for manifesting itself; and that, whether it be material or immaterial, it is composed of the very best possible elements for carrying out the designs of its unerring Creator. I consider all speculative discussion on the essence of mind to be fruitless of any possible good—nay, to be utterly worthless, and only calculated to harass the mind, waste precious time, unsettle the feeble in intellect, and end in discomfiture for all.

Before entering on the study of the individual organs, their number, names, localities, and functions, the principles of Phrenology, as embodied in the foregoing pages, should be well understood.

CHAPTER X.

THE PRIMITIVE FACULTIES—THEIR ORGANS AND CLASSIFICATION.

THE present work being essentially a guide to the study of character, it is not intended to treat of the metaphysical department of the subject in this division, further than is absolutely necessary for the elucidation of the more practical part.

Metaphysicians have from a very remote period divided the mental qualities into two distinct kinds—Intellect and Feeling—which have been variously designated, but most commonly by the terms, head and heart, understanding and will. They divide the *Understanding* into attention, judgment, association, memory, and imagination; and include in the *Will* feeling, desire, propensity, and passion. When Dr. Gall began the researches which ultimated in the foundation of the Phrenological system, he was led to look to the cranium for special organs of the above qualities, but was disappointed. The attempt was abortive. His labor, however, was not altogether fruitless. It showed that he was pursuing a metaphysical phantom; that attention, judgment, memory, and imagination—not being primitive faculties—have no organs. He began anew, tracked another course, multiplied his observations from other points of view, made fresh explorations, and was rewarded for his

toilsome search with complete success. He discovered most of the innate powers, and that the aforenamed qualities attributed to the understanding are only common properties possessed by each of the intellectual faculties. Every faculty of the intellect attends to the objects to which it is related —judges, remembers, recombines, or imagines. Tune and Time naturally give their attention to tones, judge of their pitch, duration, and harmony ; reproduce and arrange them into fresh orders and quantities in harmonious combinations. So the organ of Color attends to hues, judges of their harmony, stores them up in its memory for future reference, recombines them, and produces a vast variety of shades.

Desire, propensity, and passion are not primitive qualities, but common quantitive states of all the affective faculties. Every faculty desires gratification, and inclines to seek it, in different degrees of energy, according to its size and the exciting cause, and is susceptible to emotions, differing in kind and degree, according to the nature and intensity of the pain and pleasure to which it is subjected, in like manner as the sense of feeling may be affected by the different sensations of heat, cold, dryness, dampness, smarting, itching, tickling, and so forth ; and smell by the various qualities of odours. These are the qualitative affections, and produce different modes of action ; as sour, bitter, sweet, savory, and insipid tastes contort, or otherwise affect, the facial muscles.

Both Drs. Gall and Spurzheim divided the innate powers into two grand orders, affective and intellectual faculties ; but at this point of classification they parted company. Gall

contented himself by enumerating the powers in the order in which he thought they are most essential to life, and as they raise animals in the scale of intelligence, commencing at the base of the brain towards the median line, and gradually branching out laterally in ascending to the crown. But Dr. Spurzheim did not stop here; he thought the faculties did not only differ in kind, but that many of them varied in their modes of action, and might be divided into distinct classes; and, in conformity with this notion, he divided the Affective Faculties into Propensities and Sentiments; and the latter, again, into what are common to both animals and man, and those proper to man. He used the term *Propensities* to indicate faculties which incline to act in a certain way, and *Sentiments* to such as are not confined to inclination, but have another emotion superadded, which may be styled sentiment. He divided the Intellectual Faculties into Perceptive and Reflective, including in the perceptive the external senses, voluntary motion, and the internal senses. In the 3rd edition of his "Phrenology," the powers and organs of the mind are enumerated thus :—

Order I.—AFFECTIVE FACULTIES.

Genus 1.—Propensities.

1. Amativeness.
2. Philoprogenitiveness.
3. Inhabitiveness.
4. Adhesiveness.
5. Combativeness.
6. Destructiveness.
7. Secretiveness.
8. Acquisitiveness.
9. Constructiveness.

Genus 2.—Sentiments.

I. *Sentiments common to Man and Animals.*

10. Self-Esteem.
11. Love of Approbation.
12. Cautiousness.

II. *Sentiments proper to Man.*

13. Benevolence.
14. Veneration.
15. Firmness.
16. Conscientiousness.
17. Hope.
18. Marvellousness.
19. Ideality.
20. Mirthfulness or Gayness.
21. Imitation.

Order II.—INTELLECTUAL FACULTIES.

Genus 1.—Perceptive.

22. Individuality.
23. Configuration.
24. Size.
25. Weight and Resistance.
26. Coloring.
27. Locality.
28. Calculation.
29. Order.
30. Eventuality.
31. Tune.
32. Melody.
33. Language.

Genus 2.—Reflective.

34. Comparison.
35. Causality.

The preceding enumeration and classification is generally adopted in this country; but several phrenologists take exception to it, and with them I concur.

The division of the affective faculties into propensities and sentiments is altogether arbitrary, and the distinguishing mark is a fanciful creation. The Sentiments, so named, incline to act in a particular way for their own special gratification, equally with any of the class denominated Propensities. Pain and pleasure are the mainsprings of their action. To endeavour to be free from pain, or strive for its abatement, and to seek pleasure, and try for its increase or renewal, are instinctive promptings of nature.

Voluntary motion and the external senses are incorrectly classed as intellectual faculties; and the senses are improperly denominated external and internal; inasmuch as all the senses are internal. The organs of the special senses of sight, feeling, hearing, taste, and smell, alone appear externally; and these are solely media of communication by which we are made conscious of the existence of external things. Discrimination is the prime characteristic of intelligence; and the special senses, being devoid of this power, are therefore not intellectual. Our manner of speaking of the senses is misleading—the internal power is referred to the external organ; for instance, we speak of a quick, penetrating, discerning eye, and of a fine ear for music; but the eye and optic nerves only convey to the sensorium impressions of outward objects; but, whether any object be a turnip, a tree, a block of marble, a man, a sheep, or any other thing, it is the office of the perceptive faculties to judge. They alone discriminate differences of form, dimensions, gravity, color, and the other qualities. The ear conveys messages to the sensorium, and impresses it with the sense of sound; but it is the function of Tune to decide as to the

nature of the impression—whether the sensation was caused by the crack of a whip, the report of a piece of ordnance, a peal of thunder, the melody of song, or some other cause. Alimentiveness is the presiding judge of Taste—not the palate; and it is reasonable to infer the existence of specific cerebral centres to discriminate the quality of odours, and the multifarious sensations conveyed to the mind by the nerves of feeling; indeed, their absence would be an unaccountable anomaly.

The arrangement of faculties into classes, partly common to man and animals, and partly proper to man, is very interesting and useful. It is difficult, however, to define the line exactly where the brute ends and the man begins; but not more so than it is to precisely indicate the boundaries that circumscribe the vegetable and animal kingdoms. As it is in the latter case, so it is in the former, new functions require additional organs, and the barrier betwixt animals and man is marked by augmented cerebral parts vertically and laterally disposed. Dr. Spurzheim's division is not unexceptionable, but it is accurate enough for practical purposes. I therefore retain it, also the division of the intellectual faculties into perceptive and reflective. I have numbered the organs in the model bust according to Spurzheim, and added other numbers in rotation, besides several letters to point out the seat of additional organs, or cerebral parts, which manifest specific mental traits.

The natural location of the organs of the faculties is admirable in arrangement, and displays the unerring wisdom of the Creator. Those most nearly allied are located together in family groups, so as to render each other more efficient

help by unity of effort, than if they had been indiscriminately disposed; for, as it has been previously explained, activity of one organ increases the circulation in it and its immediate neighbourhood, and thereby superinduces activity in them likewise.

THE FAMILY AND SOCIAL GROUP.

1. Amativeness.

The organ of Amativeness is located in the cerebellum. Its length may be estimated by the distance it projects backward from the mastoid process; its thickness, by its depth below the occipital superior transverse ridge; and its breadth, by the thickness of the neck. It is extremely small in the skull of Dr. Hette (fig. 31), and very large in figure 32 and in the bust of Mr. K—— (fig. 33), "Who," says Mr. Combe, "was living with his *fifth* wife when the bust was taken, and in two cases less than six weeks, and in no instance more than four months intervened between the death of one of his wives, and his marriage with the next."—*Functions of the Cerebellum*, p. 150.

This organ gives rise to the amative propensity and sexual love, and is the great centre of attraction which draws the sexes together. When large and energetic in function, it causes intense passion, and makes lovers desirous of being united in wedlock, as the consummation of their earthly happiness. It adorns lovers in the eyes of each other with the most fascinating charms, forms of beauty and comeliness;

causes them to anticipate each other's wants, and feel pleasure in rendering mutual services. It tends to make the stern, masculine nature soft and amiable in manner in the presence of the beloved one, so as to be bland and per-

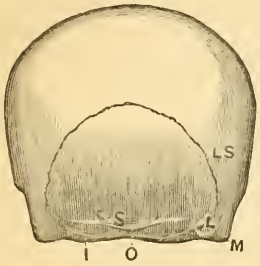


Fig. 31—Amativeness small.

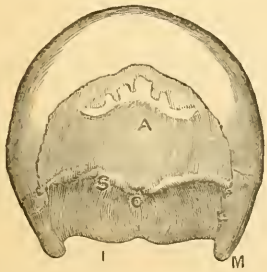


Fig. 32—Amativeness large.

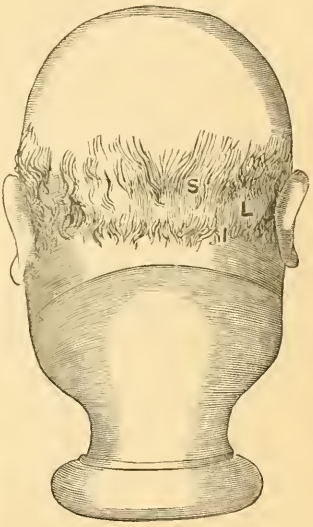


Fig. 33.—Amativeness large.

ISL, inferior, superior, and lateral margins of the cerebellum.

suasive, and it gives a winning expression to the countenance, and a mellow tone to the voice. It also develops the charms of the opposite sex, and imparts a bewitching power of romance to their words and gestures. When the organ is only moderately developed, the amative feeling is mo-

derate too. Individuals in whom it is small are strangers to the ravishing transport of passionate love, and condemn its natural manifestations in others as improprieties that are incompatible with innocence and modesty. Such persons are the icebergs on the sea of love, and harass and annoy the hymenean mariner in his voyage to connubial bliss. Amativeness, however, is a blind, instinctive, selfish impulse, and when uncontrolled by the moral sentiments and intellect, seeks gratification in the most direct manner, regardless of the claims of others, and of the misery it may entail on its hapless victims.

The faculty of Amativeness is thought by the modest sentimentalist to be of a too delicate nature to be explained to youths. This is a mistake, and it has caused great mischief. The faculty is the strongest in the constitution of young people after arriving at maturity, and is very solicitous for gratification. It should therefore be understood both in its nature and application. Ill-regulated Amativeness undermines the health, inflicts great injury on society, and produces a degenerate race; whereas its right use lies at the very foundation of society, and confers the choicest blessings of civilized life.

"To the pure in mind all things are pure," and the sexual propensity may be approached by parents, and information given to their sons and daughters on coming to puberty on this important part of their nature, without the slightest indelicacy.

The emotions which the activity of this faculty raises in the mind are involuntary, and can no more be prevented than the feeling of hunger; but as over-indulgence in table

luxuries creates a morbid appetite and a craving for stimulants, so incontinence causes unnatural amorousness, fills the mind with carnal desires, and brings before it lewd visions; thus keeping it in a perpetual state of unsettledness very injurious to health. It should therefore be strictly guarded, and kept under the government of the moral powers and an enlightened understanding.

When the organ is vigorous, and combined with large Hope and small Caution and Secretiveness, it tends to warp the judgment and blind the perceptive faculties to obvious failings in the object of its affection, and to exaggerate seeming excellencies, or, at least, to look favorably on blemishes of character, in the vain hope of being able to work a reform after marriage. This is a weak, womanly feeling; and is pardonable as far as it is the result of organic tendency. Numerous unhappy marriages have resulted from such misdirected and uncontrolled love. Those of the opposite sex who have the above combination of powers are generally too demonstrative in the presence of their lovers, being unrestrained by forethought; and their innocent manifestations are frequently misconstrued and taken advantage of by a class of rascals who prey upon the demonstrative, but innocently confiding, like wolves upon lambs.

Some physiologists dispute that the cerebellum is the organ of the amative desire; but the seat of none of the mental faculties is supported by more voluminous and irrefragable proof, an outline of which can only be given here. The whole case is thoroughly discussed in Mr. Combe's translation of the "Functions of the Cerebellum" by Dr. Gall.

There is a constant determinate relation between the

intensity of the amative propensity and the size of the cerebellum, all other conditions being equal. When the latter is small, the propensity is weak, and as it increases in size the desire becomes stronger.

The cerebellum of children is usually very small. As a general rule, it only bears a proportion to the cerebrum of one to thirteen or fifteen, but the former rapidly outgrows the latter as the youth approaches maturity, until it increases to the proportion of one to six or eight.

Some children have been known to possess large cerebellums, and have manifested the amative feeling proportionately strong. On the contrary, some men and women have had a small cerebellum, and, consequently, have manifested little desire for sexual intercourse, and, in some cases, considerable aversion has been shown. Dr. Hette (fig. 31) was of this class, and his cerebellum was exceedingly small. "Dr. Gall knew him well. He had a marked repugnance to the society of women, in which he could not imagine how a man of sense could find pleasure. This antipathy went so far, that Gall has seen him change color, and indicate a nervous affection, if a woman made an attempt to embrace him. He was of a very timid character, living always alone, and in a house inhabited by men. Gall attributed to a small development of the cerebellum the antipathy of Hette towards women."—*Phrenological Journal*, vol. vi., p. 600.

The cerebellum of men is larger than that of women, and the feeling of amativeness corresponds. "Dr. Gall," says Spurzheim, "did not think there was an organ of this propensity in the brain, but discovered it by accident. Being

physician to a young widow, who was subject to violent hysterical fits, during which her head was drawn backward with great force, he sometimes supported it with his hand, and was astonished by the great thickness and heat of her neck. Acquainted with her peculiar character, he asked himself, whether the size of the neck, and consequent development of her cerebellum, might not have some relation to her inordinate passion. Continuing observations from this hint, he soon established the point to his own satisfaction; and it is now impossible to unite a greater number of proofs in demonstration of any natural truth, than may be presented to determine the functions of the cerebellum."

There are physiologists and phrenologists, who, while admitting the cerebellum to be the seat of the organ of Amativeness, think that it has other functions as well, one of which is to regulate voluntary motion.

My experience convinces me that the exact seat of the amative feeling is in the posterior lobe of the cerebellum, in the centre of the extremity of each hemisphere, and that the further these points project backward the organ is the longer, and more sensitive to excitement, and the feeling more acute; but, when the cerebellum is narrow and not deep—that is, when the organ is long and narrow—it is active in function, but is neither energetic nor enduring, and is easily restrained, and soon fatigued. Again, in cases where there is great length, breadth, and thickness, the faculty acts with great vigour, and, in sanguine and cephalic temperaments, urges its claims with impatient vehemence. I may here state, that the length of an organ gives acuteness, and breadth gives power.

The experience of my friend, previously introduced to the reader as being conscious of the active operation of nearly every faculty, will occasionally be referred to in defining the functions of the primitive powers. In the present case it is very instructive. Excitement of his sexual propensity, contrary to general experience, is first felt in the posterior lobe of the cerebellum, at the parts just indicated, by a kind of half-smarting, half-aching sensation, which subsides after the natural exercise of the faculty; but, if restrained, the irritation extends day-by-day over a greater surface, laterally and forward, until it reaches about half the length of the hemispheres, and gradually increases in intensity at the extremities, something like local inflammation in boils and abscesses. The head inclines backward and presses inward against the neck, accompanied with great tension of the muscles and a sensation of cracking when the head is moved. He also feels inclined to rest his head at the excited part upon his hand, or to press it against anything hard, such as the top of a chair-back, which gives him temporary relief. Knowing these facts has been very serviceable to me in my profession as a phrenologist and mesmerist. I am frequently consulted by persons for disorders of the nervous system, and not a few have I found suffering from the effects of severe continence, and many have expressed surprise when I have minutely detailed their symptoms, after observing the development, pulsation, and other external indications of the cerebellum. "Well," said one, "that is remarkable. I have taken the opinion of several medical practitioners, and not one of them even hinted at the symptoms you have instantly discovered."

Similar remarks have been repeatedly made to me. If the medical faculty were to make the principles of Phrenology a branch of study it would be very advantageous to them.

Some persons suppose that the functions of the lateral regions of the cerebellum are to regulate, or, in some manner, exercise control over muscular motion. With regard to this view, the case of my friend gives no direct evidence; but he has several times suffered extreme prostration without feeling any particular sensation in these parts; although, when physically weak, he invariably feels a soreness, both internally and externally, in the Centre of Energy.

The result of my observations points out the functions of the lateral portions of the anterior lobe of the cerebellum to be in direct relation with the genital organs—to be the source from which they derive their motive power; and that persons who experience occasional attacks of impotency will, in all probability, be found smally developed in that region. There is no fixed relation between the sexual desire and the vigour of the genital organs.

The organ of Amativeness is greatly modified by the other faculties with which it acts in combination. If the organ be large, together with Wonder, Ideality, and Sublimity, combined with a nervous or sanguine temperament, the mind will be inspired with the most ardent passion; and will tend to soar into the ideal creations of fiction and romance. If, in addition to this combination, large Approbativeness acts in conjunction with a rather small and moderately cultured intellect, passionate love, personal adornment, and ambitious aspirations will be the probable tendency. When Philopro-

genitiveness, Inhabitiveness, and Adhesiveness are large, combined with large Amativeness, then the domestic circle, is the power of attraction, and the "Cottar's Saturday Night" will most probably be thought by persons so constituted to be the poet's most interesting production.

Amativeness may be viewed in many other combinations, and in a great variety of phases; but the student will not be able to enter into these minutiæ until he understands the functions of all the faculties; and, as no single organ forms the character, I shall hereafter first point out the locality of the organs, and define the functions, then give a few practical reflections on the part each organ performs individually in the formation of character, and treat of the effects of combination in a separate chapter.

2. Philoprogenitiveness, or Love of Young.

Philoprogenitiveness is situated at each side of the median line, above the occipital process. Its size must be estimated by the length of its backward projection from the mastoid vertical line, its peripheral expansion, and depth. When it is very large the backhead is long, and it often droops considerably. Figures 34 and 35 are engravings from photographs of skulls taken one-fifth the natural size; figure 34 is that of a female supposed to have committed suicide; this organ is large in it. Figure 35 is from the skull of a Russian field-officer who fell at the Crimea in 1854. It is a splendid specimen of the type of a soldier, but is too small for the commander of a large number of troops. In it Philoprogenitiveness is only full, but Amativeness is

rather large. Note the difference of the two skulls in these respects. They are not extreme cases of smallness and largeness.

The function of Philoprogenitiveness is to love, to take care of, and administer to the wants of, the young. It is larger in females than males. This is apparent in the tastes and manifestations of children as displayed in the choice of their playthings. The boy may rock the cradle and attend to baby, as a matter of duty, but the girl *delights* in the exercise and chooses to nurse as one of her greatest privileges. If she cannot be entrusted with a baby on which to bestow her affection, she earnestly entreats for a doll to fondle, and failing to procure one, will caress a hassock or a sofa cushion, or perhaps make friends with pussy or the lap-dog. Boys, on the contrary, choose joiners' tools, spades, drums, cricket bats and such like implements.

When this organ is large, it imparts the tenderest emotions towards children, and the most ardent longing to possess them—an aching void that nothing else can fill. It is very interesting to observe a nursing-scene by a fond mother. How lovingly she gazes upon the beautiful features of her first-born, how engagingly she talks to him, tries to arouse his attention and amuse him, and when she succeeds in exciting a laughing response, how tenderly she hugs the wee thing to her bosom, and anon, holds him off to take another admiring look, then rapturously drawing him to her again imprints upon his sweet velvety cheek a number of kisses. If baby be well, mamma is cheery; though various painful events transpire to disturb her peace, she has, in her son, a marvellous touchstone of happiness. But should baby be un-

well, what a change his sufferings work in her; instead of a joyful countenance and felicitous smiles, there is displayed nervous apprehension, sadness, tears, and gloom. With what anxiety she watches the cot, how she bends over it, turns her ear and listens to his breathing—now fancying and hoping he breathes less rapidly, and again lacerating her affections by a dread suspicion that she is mistaken, that her darling is worse—sinking—dying. Oh the unutterable

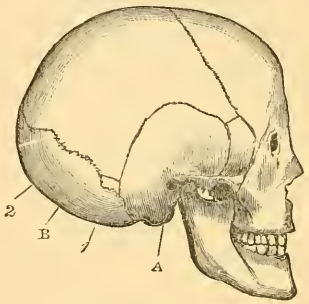


Fig. 34.

grief of such a mother when death marches in and executes the supreme mandate—it is indescribable. She may intellectually and reverently bow to the Almighty's will, and even say, "The Lord gave and the Lord taketh away, blessed be the name of the Lord;" but still Philoprogenitiveness refuses to be comforted. Every baby, and every article of baby's apparel, she beholds, re-opens the wound. When she sees the wardrobe of the departed one, her heart appears to swell, well nigh to bursting, until she finds solace in tears. The father may feel acutely also; and, if he be

an affectionate husband, his wife's grief will find an echo in his mind, yet he will be incapable of realizing the depth of her sorrow. What a wise provision of the bountiful Creator! If this feeling of attachment for the young was not deeply implanted in the mother's mind, the world would soon be depopulated. Nothing but love could induce parents to exercise the necessary care in rearing children. Exceptional cases, however, are met with, where the sexes have opposite

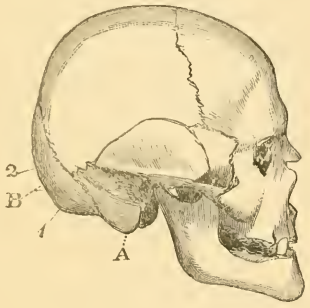


Fig. 35.

types of head. In those instances, the father's love for his children outrivals the mother's. Some women even have an aversion for children, and look upon them as impediments to their happiness. And numbers have removed the stumbling block by infanticide.

Nursemaids should have a large development of Philoprogenitiveness, in fact, without it they are unfit to take care of the young—for, though Benevolence and Conscientiousness may instigate them to perform all the duties devolving upon them, there is, when the organ is small, a cold un-

sympathizing manner, which will render the children under their care comparatively comfortless. It requires the organ large to sympathize with children—to enter into their feelings, anticipate their wants and make them happy and joyous, to overlook or wink at their little failings, and make the most of their excellencies. This line of conduct is also necessary for a nurse's own comfort, and to enable her to enjoy life in the nursery.

Teachers of infant schools should have well developed Philoprogenitiveness. It gives a tender softness to the voice in conversing with children, which awakens in them a lively sense of reciprocal affection, tends to subdue rough wayward natures and to draw them with the attractive forces of love, when sternness and the rod would only excite to determined opposition.

"Kind words will never die."

The difference between one person constantly watching for little faults in children and magnifying them to enormous dimensions, never, or very seldom, seeing a good deed or anything praiseworthy, and another conniving at small errors, and generally perceiving some commendable quality or act of goodness, is caused, in a great measure, by the difference in the size of the organ of Philoprogenitiveness.

Philoprogenitiveness, like Amativeness, is a blind impulse, and, when not regulated by the intellect and the higher powers, it acts very reprehensibly in various ways. Spoiling children by improper indulgences, being blind to their sins and the possibility of them doing what they ought not to do. Getting into useless combats in their defence; and,

should they differ with their companions, declaring that they are right and every other person is wrong—are but a few of the results of the excessive development of Philoprogenitiveness uncontrolled by a sense of justice and the understanding.

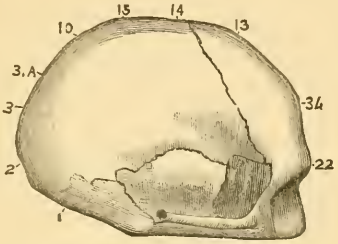


Fig. 36.—Skull of Burns (Philoprogenitiveness large).

Natural Language.—When this organ is large and active, the head leans backward in the direction of that part; and not unfrequently a nurse may be observed throwing her head back violently, sometimes trying to put the child back, as if to press it against the organ.

I have invariably found that, when the lower portion of the organ is smaller than the upper, the mind centres upon pets more than children.

Dr. Gall's attention was directed to the function and situation of Love of Young for five years. He observed a protuberance in the back part of the heads of most females, and was convinced that the large mass of brain in this situation performed some important function in the animal economy, but all his efforts were unavailing to discover it, until one day he was reminded by a clergyman that monkeys

were strongly attached to their young. Reflecting on this suggestion, it occurred to him that this might be the propensity of which he was in search, and, by appealing to nature for evidence, he soon established its proper function.

No person, who has carefully watched the manifestations of love which animals manifest for their young, and their tender solicitude for their safety, can fail to perceive the strength of the instinct. "Savage and wild as a tiger robbed of her cubs," is a proverbial saying; yet there is an obvious difference in animals in this respect.

I possessed two female cats, both of which brought forth several litters of young. The form of their heads was very different, and their dispositions were equally so. The elder one had the usual cranial conformation of the feline species common to her sex. It was narrow, and the back part long, and she was one of the most tender and affectionate of mothers. Her kind attention to the wants of her young was remarkable. She was in no hurry to wean them, and even after doing so frequently hugged them affectionately. She also used to nurse a puppy. The younger cat had a round, short head, of the male type, and was a little ill-tempered, spiteful creature, and almost devoid of parental love. Twice she abandoned her helpless kittens, and permitted them to die. Thinking that, when she left her young, she might not have been in good condition, and have had no milk, I decided to provide against such an emergency the next time she was *enciente*, by taking especial care to feed her well. This had the effect of causing her to stay with her next litter, or, anyhow, she did remain with them, but I am convinced the selfish creature only did it to be relieved of her milk, for

her paps were full—the result of good feeding. She used to get out of temper with the poor, little things, and treated them so ill, that I could not sometimes forbear whipping her; and the elder cat—the good mother—observing her ill-conduct, would take the young ones, wash and smooth down their silky fur, and afterwards lie down, and draw them tenderly to her and embrace them, and even encourage them to take hold of her paps, though, poor brute, she had no milk. She was remarkably attached to the young.

The reader is referred to my friend's case (p. 49) for the powerful effects of morbidly excited Philoprogenitiveness. At the time he felt the impulse strongest, it was invariably accompanied by a dull, throbbing pain in the lower part of the organ.

Dr. Gall says, "In the great hospital of Vienna there was a pregnant woman who was attacked with a serious disease. I was told that she had a very peculiar kind of delirium—that is to say, that she believed herself pregnant with six children. In consequence of my principles, I attributed this phenomenon partly to a more than ordinary development, and partly to an over-excitement of the organ of the love of offspring; and I entreated the physicians to send me the head of this woman in case she died. She died. What was my joy in seeing an extraordinary development of this organ! The posterior lobes not only encroached upon the cerebellum much more than they usually do in women, but they were farther rounded and very voluminous."—*Functions of the Brain*, vol. iii., p. 285, American U.S. ed.

3, 3A. Continuitiveness.

Continuitiveness is situated in the median line, commencing at the superior margin of Philoprogenitiveness, and extending to Self-Esteem, and it is bounded laterally by Adhesiveness and Approbativeness. Its size may be calculated by the same rule as Philoprogenitiveness. It is *extremely large* in Thomas Williams, *large* in Mr. Combe and the Rev. J. Cranbrook, *full* in Drs. Gall and Spurzheim, and *rather small* in William Palmer.

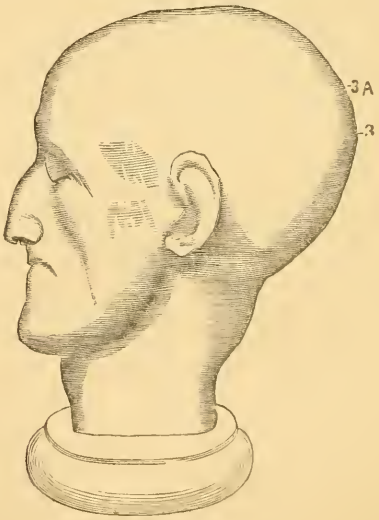


Fig. 37.—Rev. J. Cranbrook (Continuitiveness large).

The sphere of action and modes of operation of this organ are very extensive, and it exercises considerable in-

THOMAS WILLIAMS.

This portrait betokens excellent perceptive faculties, plodding industry, very great continuitiveness, and an inward consciousness of self-importance. All the organs in the upper part of the back head are very large.

fluence over the operations of the mind, and in the formation of character. Its function has been the subject of much controversy among phrenologists, and they are not yet agreed regarding it. I therefore invite the student to a careful perusal of the history of its discovery, and the different opinions held regarding it by the leading phrenologists.

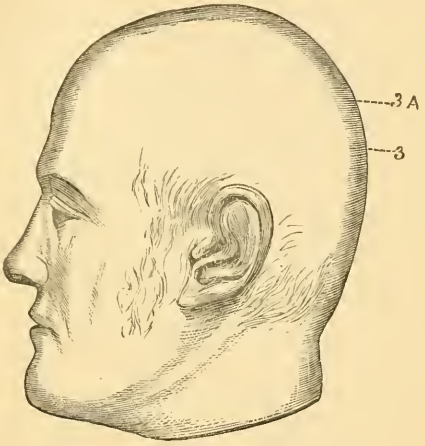


Fig. 38.—Dr. Spurzheim (Continuitiveness full).

I may state, that I do not altogether coincide with any opinion hitherto advanced by any author; but not wishing to pre-occupy the mind of the student with my views, and thus perhaps prejudice him in my favor, I shall first notice the opinions which have prevailed, and those which obtain at the present time. Dogmatism is at all times an unamiable trait, but, in the present case, its manifestation would come

with an especial bad grace, an error that I shall endeavour not to commit, but will discuss the question in the most impartial spirit—my sole aim being a desire to arrive at the truth.

Dr. Gall did not think the portion of the brain under consideration to be an independent faculty. He considered the whole space between Firmness and Philoprogenitiveness to be occupied by Self-Esteem, and thought that the functions attributed to it were only modes of manifestation of the latter organ. But Dr. Spurzheim believed the spaces marked 3 and 3*a* were the seat of a primitive power, and that it determined animals in the choice of a place of abode, and attached them to particular regions. He says, "If we place an animal in any other region than that destined for it, it feels ill or uneasy, and seeks to return to its natural dwelling. Some seek the water from the first moment of their existence. Turtles and ducks as soon as they are hatched run towards it. Other young animals, again, stay on dry land; some of these prefer elevated and mountainous regions; some the level country; and others the marshes. Among the feathered tribes, some live in the higher, others in the lower regions—for the power of flying does not produce the instinct that prompts the eagle to soar into the highest regions of the air; other birds, though their power of flying is very great, have not this propensity. Some birds build on the tops, some in the middle, and others in the holes of trees; some on the earth; some on the banks of rivers, etc. Now what is the cause of this modified instinct?" "I consider in animals the cerebral part immediately above the organ of Philoprogenitiveness as the organ of the instinct

that prompts them to seek a peculiar dwelling, and call it the organ of Inhabitiveness. My attention has been and is still directed to such individuals of the human kind as show a particular disposition in regard to their dwelling place."—*Phrenology*, 3d ed. pp. 141–6.

Dr. Spurzheim's observations respecting this faculty are fully given in the preceding extracts, from which it will be perceived that his views of its function are more the result of speculation than induction. Still they are valuable and suggestive as mapping a course for further investigation, which he invited phrenologists to pursue. He, however, in a certain measure foreclosed the inquiry, by giving it a name indicating a particular function, with inconsiderate haste.

If it were the case that the same faculty caused some animals to prefer the water, some the marshes, some the dry land, some the plains and others elevated situations, and so forth, such a fact would strike at the very root of the science of phrenology—for it teaches that one organ cannot perform dissimilar functions. Dr. Spurzheim meets this difficulty by suggesting another, and bringing into action a principle that destroys the value of comparative anatomy as corroborative of the truth of Phrenology. He says, "I however maintain that the place of an organ can prove nothing, when animals of different kinds are spoken of. For, if animals be endowed with dissimilar faculties, their organs may still occupy corresponding places of the head."—*Phrenology*, 3d ed., p. 143. But, supposing it were true that animals are guided in the choice of a dwelling by the organ named Inhabitiveness, it does not follow, as a logical sequence, that man is guided in his choice of a dwelling by a similar propensity,

inasmuch as all the faculties exert an influence to this end by suggesting localities most agreeable to their tastes. A large development of Locality is pleased with landscape scenery ; Ideality enjoys the picturesque and the beautiful, the quiet and serene, sunshine, rippling streams and winding rivers, and outspread lawns. Sublimity is inspired with, and longs for, the vast, the grand, and the illimitable; the craggy steep and the rugged pass, the towering mountain with its cap of snow and icy slopes, the deep dell, and the wild loch and glen. Marvellousness delights in the novel, the uncommon, and the weird. Approbativeness is ambitious for a position that points unmistakeably to the greatness of its possessor—the castellated mansion with its parks and fish-ponds. Self-Esteem is satisfied with nothing that does not distinctly indicate authority and power. Philoprogenitiveness seeks a dwelling suitable for children, a safe, healthy part, where they can enjoy themselves, and be happy. Amativeness consults the desires of the loved one, and advocates her claims. Benevolence, Veneration, Acquisitiveness, the musical faculties, the intellect, and all the faculties of the mind exert an influence in the choice of a dwelling. Each endeavours to get an abode in the locality most suited to its taste, and calculated to yield it the largest amount of pleasure.

Many circumstances combine to attach a person to home and certain places of abode. Thinking of the place of our birth and childhood seldom fails to evoke reminiscences which cause the affections to cling to the spot with fond endearment. Pains and pleasures, early associations and bereavements, leave their traces deeply engraved on the

mind, and inseparably connect us with their causes and the place of their occurrence.

Mr. Combe took a different view of the function of this organ from Dr. Spurzheim. He believed it to be "To maintain two or more powers in simultaneous and combined activity, so that they may be directed to one object," and he named it Concentrativeness. He remarks, "Some persons possess a natural consciousness of every thing that goes on in their own mind, in which power others seem to be remarkably deficient. The former can detain their feelings and ideas, and deliberately examine their character and consistency; the latter cannot do this—their minds are like the surface of a mirror, on which each feeling and thought appears like the shadow of a moving object, making a momentary impression, and passing away. They experience great difficulty in detaining their emotions and ideas, so as to examine and compare them; and, in consequence, are little capable of taking systematic views of any subject, and of concentrating their powers to bear on one subject. I have observed this organ to be large in the former, and small in the latter.

"It is difficult to describe in words the manner of a man's mind; but the difference in manifestation is so great between those in whom this organ is small and those in whom it is large, that if once comprehended, it will always be recognized. In conversing with some individuals, we find them fall naturally into a connected train of thinking; either dwelling on a subject which interests them, till they have placed it clearly before the mind, or passing naturally and gracefully to a connected topic. Such persons uniformly have this organ large. We meet with others, who, in similar

circumstances, never pursue one idea for two consecutive seconds, who shift from topic to topic without regard to natural connection, and leave no distinct impression on the mind of the listener; and this happens even with individuals in whom reflection is not deficient; but this organ is in such persons uniformly small."—*System*, 5th ed.

Here we have another useful series of observations of a very different kind from Dr. Spurzheim's, and which appear to have caused the observer to feel himself justified in drawing an equally different conclusion, and in giving a name in consonance therewith.

Mr. Combe's observations have a value and inductive force which Dr. Spurzheim's do not possess, inasmuch as the mental traits he describes are concomitant with certain states of development of the organ in question—a large size accompanying great mental concentration and connectedness of style, and small size want of concentration, and discursiveness; still, I do not think his inference is warranted. Both the field of observation and the data are too limited. Full justice is not done to the intellect, for, it is obvious that, before ideas can be retained before the mind until they are properly examined, they must be clearly perceived. This presupposes not only a knowledge of the subject under consideration, but that the organs necessary for a particular train of thought be adequately developed; because, if one of them whose function ought to be vigorous, in order to fully comprehend some details coming particularly within its sphere of action, were inadequately developed, no amount of concentrated effort would supply the deficiency, and discursiveness might ensue in consequence. Supposing, for

example, the topic of conversation necessarily involved complicated relations of cause and effect, and the organ of Causality were very small in any member of the company, he would not even be able to perceive these relations, much less command their presence before the mind for a lengthened period; neither could a person with a small organ of Color perceive all the relations and harmonies of hues, nor be able to converse connectedly on their picturesque effects in particular combinations. Continuitiveness was one of the largest, if not the very largest, organ in Mr. Combe's head—or Concentrativeness, as he named it; and he unquestionably manifested the traits ascribed to it in considerable force, of which fact his writings yield abundant evidence. Yet, with all his vigorous Concentration, he could not perceive the relations of numbers, and was obliged to employ clerks to perform ordinary business calculations, for the simple reason, that his organ of Number was small. He concentrated his attention on phrenology, and singularly excelled in mastering its principles and applications in their minutest detail; but, had his Causality been as poorly developed as his Number, he could not, with all his power of concentration, have achieved much; although he might, as a scientific man and philanthropist, have exerted himself continually in the propagation of its doctrines. The fact is, all the powers of his mind were by common consent engaged in the enterprise, and felt pleasure in the work; and hence, they as naturally became concentrated as a stone thrown into the air falls again perforce of its own gravity. He had experienced the shortcomings of the old metaphysical teachings to make a complete science of mind, and hailed with

gladness a better system; he studied, and threw the whole weight of his capacious mind into the work of overcoming opposition in the establishment of its claims. He saw its general utility, how it could be usefully applied in education, in criminal legislation, in insanity, in art, and in understanding the physical and moral laws—in fact, in comprehending the entire constitution of man; and, his moral powers combining with his intellectual, he brought their concentrated force to bear on the subject; while his Continuitiveness supporting them, for its own gratification, kept them at work, or they might otherwise have grown tired, and sought rest in change. The function of Continuitiveness is not to concentrate the intellectual force, except indirectly by inclining the mind to constancy of pursuit, and thus preventing it dissipating its energies by fitful changes. Now, a tendency to *continuity* of emotion and thought is very different from a *concentration* of these qualities. The two states may exist together in various degrees of intensity, or one of them may be present while the other is absent.

The individual differences mentioned by Mr. Combe are exceedingly common, and may be observed daily, and must be explainable on phrenological principles, and, I believe, this may be done by Continuitiveness, but there are insuperable objections against an organ of Concentrativeness having the powers Mr. Combe attributes to it. Suppose such an organ to exist, possessing the power of maintaining two or more organs in simultaneous and combined activity, it could only do so as a predominating propensity or intellectual faculty beyond the control of the will. It might, therefore, keep ideas before the mind for indefinite periods; except

power were invested in some other faculties to restore the normal state; in which case the influence of the concentrating power might at any time be nullified and kept in abeyance. But we know that such an anomalous state of things does not exist. Indeed, the phrenologists who believe in an organ of Concentrativeness lay themselves open to the charge of gross inconsistency; inasmuch as *attention* is not admitted by them to be a primitive power—and correctly so—but only a quality common to all the faculties. Now, an organ of Concentrativeness would not only perform the function of simple attention, but would execute this office in a concentrated and authoritative manner, exercising a kind of mastership over all the other faculties.

Whilst Dr. Spurzheim and Mr. Combe, and others of the Edinburgh phrenologists, were interchanging opinions on the functions of Continuitiveness, the subject was engaging the attention of Dr. Vimont, of Paris. He had been a decided opponent to phrenology, and commenced researches into comparative anatomy, with the view of upsetting Gall and his new-fangled system; but, instead of accomplishing this task, he became convinced of his own error. Having appealed to Nature, she unfolded to him the imperishable truth of Phrenology. He accepted her teachings, and declared himself her convert. A huntsman, conversing with him on the remarkable faculties possessed by dogs employed in the chase, asked him to what faculty he would ascribe the quality which distinguished the setter dog He says, "My answer was, that the mode of action was the result of the education which he had received. However, after having remarked that many dogs placed themselves naturally in the

attitude of setting, without having received any previous training, and that there were certain species which could not be educated to this mode of action, I thought the disposition must be referable to an innate power which education only developed. In studying the conduct of many animals, I found that this faculty was in some sort common to all the species, although some possessed it in a more remarkable degree than others. Thus, I had seen cats and foxes, in going in search of their prey, present all the characteristics of the setter dog." After examining the skulls of setter dogs, martens, cats, and foxes, and studying the habits of birds, and the form of their skulls, he continues—"I arrived at the discovery of this faculty, and was able to fix definitely its organ." The conclusion to which he arrived was, that the space between Philoprogenitiveness and Self-Esteem was occupied by two organs. "I do not," he says, "agree with Mr. Combe in thinking that the faculty of Inhabitiveness and that of Concentrativeness depend upon the same organ. On the contrary, I am satisfied that there is a distinct organ for each" (the first corresponding to *3a*, and the second to 3, in the model bust). "The latter appears to me to be the organ to which Mr. Combe gives the name Concentrativeness."—*Phrenological Journal*, vol. x., p. 569.

This view of the case tends to reconcile the conflicting opinions of Dr. Spurzheim and Mr. Combe, and to account for their difference. The generally received opinion at the present time is, that there are two organs, as suggested by Dr. Vimont; but their relative situations have somehow or other got inverted. The lower portion is now designated Inhabitiveness, and the upper portion Concentrativeness.

When this inversion was effected, and by whom performed, I do not know. It is probable that the lower portion of this organ does produce attachment to place when acting in combination with Adhesiveness and the other organs of the social group.

The following functional characteristics, however, admit of no doubt. Individuals who have a large development of Continuitiveness incline to settle in particular localities and follow some fixed avocation. They apply themselves assiduously to whatever they take in hand to do; whereas those who have a small development of it are unstable, and incline to mental and physical rambling, to changeableness of study, and migratory habits. They neither dwell long in any place nor on any subject; they seem deficient in self-control and self-denial, and follow the bent of inclination rather than the decisions of the judgment.

I have observed a great difference in the acquirements of men, which could only be accounted for by an inequality of development of Continuitiveness—for, after making all due allowance for apparent dissimilarities, they were about equal in other conditions. Some, with only moderate intellects, have gained a higher degree of scholastic and literary excellence, and accomplished greater results in every thing they engaged in than others, who, with a much larger intellect, had a less endowment of this part. Whatever may be the exact nature of this function, and the various modes of its operation, settledness, stability, industry, and attention are agreeable to it; but want of application, rovingness, inconstancy, and desultoriness affect it disagreeably; and, consequently, it exerts a powerfully-disposing

influence over the mind's operations—not an authoritative influence, in the manner of a superior over a subordinate, but rather that of approval or disapproval,—and by coalescing with those other faculties that will aid it in gaining pleasure, and relieve it from annoyance and pain. This is the rule of action of every faculty. They each try to secure the assistance of others in the attainment of their aims and the gratification of their desires; but Continuitiveness extends its sphere of activity to every operation of the mind. It commends and delights in settledness of purpose, and habits of industry, whether mental or physical, and it censures fickleness and indolence, from whatever cause these traits may proceed. It unites with Adhesiveness, Amativeness, and Philoprogenitiveness in establishing a home, and, by its continuity of action, tends to fix the attention of these organs on their related objects, and on those in which they take special delight. By this means, a lasting impression is made, and attachment strengthened. It is pleased with an active intellect, and assists in acquiring knowledge, not that it has any intellectual property—for it is a pure emotion —but that industry and continuous effort of the intellect give it special gratification.

The effects of the approval and disapproval of a predominant affection on the mind are very great, and enter largely into the formation of character. This may be strikingly illustrated by analyzing the operations of the organ of Approbativeness—the "Drill sergeant of society," as Mr. Combe aptly terms it. This faculty gives rise to ambition and rivalship, a spirit of emulation, and an ever-longing desire for praise; and failing to procure it, is susceptible of the

most acute feelings of disappointment—provoking to wrath, vengeance, violence and outrage, shame, jealousy, and suicide, of which the history of unsuccessful ambitious aspirants furnishes numerous examples. Active and energetic Approbativeness shapes the course of millions, disposing the mind to act wholly on its behalf; and without the guidance of a vigorous intellect and the moral sentiments, it will stoop to the most degrading servility, and divest its possessor of every vestige of manly independence. To particularize is unnecessary; the reader's own experience will probably furnish many examples, as they are unfortunately too common. Predominant Continuitiveness affects the mind in a similar manner. Abatement of effort annoys it; to leave the study, counting house or other place of business, workshop, or ordinary routine of daily pursuit, is considered a neglect of duty, an hour's recreation a waste of valuable time. The necessity of fresh air, and the incalculable benefits of change, may receive the assent of the judgment; but the imperative demands of Continuitiveness, and the pleasure its exercise yields, overrule all arguments, illustration, and remonstrance. It does not define the course to be pursued —this is the prerogative of other vigorous powers; the weaker are overruled, and must be content with what gratification they can get in the service of the stronger.

Some folks, again, are as different from the preceding as it is possible to conceive; they are hardly ever stationary, settle nowhere, cannot find a suitable occupation, are the "Jacks of all trades and masters of none." Ever on the alert for something fresh, constantly hearing of some calling more adapted to their tastes—better masters and higher

wages, healthier employment, more comfortable houses, pleasanter scenery, and a host of superior advantages. Of course, there is no peace till the Jordan is crossed, and a secure footing obtained in the land of promise. It flows with milk and honey for awhile, but somehow or other the aspect soon changes, the milk does not cast so much cream, nor is it so thick; and the honey is not what it used to be, it is not so sweet and fine flavored, nor so rich in quality generally. Then the health of the wife is failing, and the children, poor things, do not enjoy themselves, and a score of other reasons urge the necessity of a speedy change. In such persons, Continuitiveness is generally small.

Mr. Sidney Smith considers the function of the organ hitherto called Inhabitiveness and Concentrativeness, to be the propensity of pursuit, or the instinct of object, habit, and custom, and to be conservative in its tendency.

To correctly calculate the influence of Continuitiveness on the intellect, individuals should be selected in whom it is very unequally developed, and their mental manifestations noted during a lengthened period—say, at least, six months—or, their history might be obtained. This is necessary, because the effect of the organ can only be fully seen in the difference displayed in constancy of application. Some persons, with small Continuitiveness and a large and vigorous intellect, have a great command over their ideas for short periods, and make rapid progress in study, and so long as they continue their efforts, far surpass others who have a less intellectual endowment and large Continuitiveness; but, in consequence of the latter class being more assiduous than the former, they ultimately excel. It is,

therefore, not so much the concentration of intellectual force by which superiority is distinguished, as continued application, although the latter naturally secures the former.

4. Adhesiveness.

Adhesiveness is situated at each side of Continuitiveness and the upper portion of Philoprogenitiveness. It is the organ of filial affection, brotherly love, and friendship.

Amativeness unites the sexes with bonds of love, Philoprogenitiveness binds them tenderly to their offspring, and Adhesiveness entwines the affections of the young round their parents, like ivy round the oak. It also links brothers and sisters together with a cable of endearing attachment. It embraces relations, and extends its sphere of action to companions, school-fellows and playmates, and mutually attracts kindred spirits of thought and feeling into a compact bond which death alone can sever. Adhesiveness is the foundation of society, and forms one of the corner-stones in the building of universal brotherhood. It is the disagreeable affection of this organ that harrows the mind, makes the heart palpitate, causes a sinking unutterable feeling of isolation at the separation of a beloved friend, and calls into action an amount of latent affection which the subject of it little thought he possessed. It was an outburst of smouldering emotion that caused the Right Hon. John Bright's eloquent tongue to falter, his chest to heave, and his eyes to be bedimmed with tears in the House of Commons, when referring to the death of Mr. R. Cobden. "I

never knew," said he, "how much I loved him, until I found that I had lost him."

The organ of Adhesiveness is one of love's principal channels. It takes in, as well as lets out, and luxuriates in reciprocal attachment. It makes physiognomists of all, from the helpless infant to the decrepit with age. A fond look or a kind word from a friend thrills the mind with joy, but harsh words and angry looks have a saddening influence on a loving soul.

History presents many noble examples of devoted friendship even among incorrigible criminals: and some individuals may really be described as gregarious. They cannot live alone. They do not enjoy a meal by themselves. Their table is never so well furnished as when it is surrounded by friends, nor are the viands ever so much relished.

The sphere of Adhesiveness is not confined to human society, but extends to the brute creation, and to objects animate and inanimate.

A young man of my acquaintance had a little dog to which he was very much attached for many years. One day the poor little creature got run over by a cart, and a neighbour, seeing the accident, carried it to its master crushed nearly lifeless. Poor fellow, when he saw the dear creature's injuries, his manly chest heaved a bitter sigh, and after trying to soothe its sufferings, he sought seclusion to drop a tear, and thus relieve his deeply wounded Adhesiveness. At one o'clock next morning, poor Jessie died licking her master's hand. An aunt of the young man having heard that he wept for his dog, laughed and ridiculed his weakness, when he replied, "Had you experienced the years of affliction and

severe suffering that I have done ; and, during many weary hours, night and day, had had no other companion or source of comfort but a little innocent, faithful dog, you too, probably, would have dropt a tear on witnessing its poor mangled body and its agonies." We here perceive how strongly the human mind may become attached to animals, and how circumstances combine to strengthen bonds of affection. This young man was never known during a period of four years of intense, agonizing pain to weep but once, and that was caused by overpowering nervous prostration. He was an extraordinarily patient sufferer when only a boy ; yet he wept for his faithful dog. These facts show the incapability of one person understanding the feelings peculiar to another. Those people who set themselves up as a standard by which to judge others, err greatly.

"The heart like a tendril accustomed to cling,
Let it grow where it will, cannot flourish alone ;
But will cling to the nearest and loveliest thing,
It can twine with itself, and make closely its own."

There is a very remarkable difference in individuals with regard to friendship. Some have many acquaintances but few friends. They may be the life of a social circle or a picnic party ; their witticisms and intellectual facundity may excite mirth and pleasurable emotions, yet fail to inspire the feeling of true friendship. In them this organ is small. They are the out-of-sight out-of-mind class. Some persons produce an opposite effect—beget at first sight an instantaneous feeling of mutual affection and enduring attachment. They have this organ large.

The organ is generally larger in women than in men, and it

is in their generous, confiding natures that friendship attains nearly to perfection.

The following is the substance of Dr. Gall's account of the discovery of this faculty. He was requested to take the cast of the head of a lady who was said to be a model of friendship, and, in doing so, he observed two prominences constituting the segments of a sphere at each side of Philoprogenitiveness. He inquired of all the friends of the lady respecting her dispositions, and all united in testifying that she had an invincible attachment to friends. Although she had experienced great changes of fortune—passed from poverty to honors—her feelings for her friends had never changed. This characteristic trait led him to infer a connection between it and the cerebral prominences in her backhead.

A very large development of Adhesiveness tends to abuse by centring upon unworthy objects, and expressing inconsolable grief at their loss. In all cases this organ should be kept under the control of the intellect.

Some friends cannot agree long in society, but are yet much attached, and would be unhappy if they could not pay each other an occasional visit. This arises from active Adhesiveness, and a want of organic fitness in other faculties —the former draws, and the latter repels.

D. Marriage, or Union for Life.

Marriage is of divine origin. He who said, "It is not good that man should be alone, I will make him an helpmeet for him," implanted in the human constitution an ineradicable propensity which urges man to seek a wife, and "leave father

and mother, and cleave unto her" with undying affection; but whether this natural prompting is the effect of one faculty or of several, is not yet fully determined.

Dr. Gall, after extensive observation and much thought, did not think the evidence conclusive either way; but thought the balance of probabilities was in favor of a fundamental faculty. Dr. Spurzheim thought the inclination to marry had its foundation in Adhesiveness; but Dr. Vimont considered it to spring from a fundamental faculty located at the base of the posterior lobe adjoining Philoprogenitiveness, and this opinion prevails extensively at the present time. I have studied the function attributed to the organ of Marriage, and cannot discover one trait peculiar to it which is incompatible with Adhesiveness when assisted by Amativeness and the other social faculties.

It remains for those phrenologists, who believe in Marriage being a fundamental faculty differing essentially from Adhesiveness, to show a sufficient number of cases in proof.

Many animals live in a state of marriage. The male makes love to the female of his choice, and courageously repels the advances of others that desire to woo her, and, when he has gained his suit, remains true to the compact. Of this class may be mentioned the lion, fox, roebuck, and marten; and among birds, the eagle, hawk, crow, magpie, swallow, and sparrow. When the season of their love has expired, they continue faithful to each other. Other quadrupeds and birds seldom approach the females until they feel a need of copulation, and, having satisfied their desires, show no further attachment. And there are not wanting members of the human species who are little removed from

this animal state of feeling, and some who do marry are very unfaithful to their vows. Some persons unite for life. Should death sever the earthly tie, the survivor feels bound to the departed by indissoluble cords of love, and longs for a reunion in the eternal spheres, and never makes a second choice. Others, again, like Mr. K—— already spoken of (p. 182), act with an equally strict fidelity, but, when disunited by mortality, soon transfer their affections, and become attached a second and a third time, and even oftener. What is the cause of this difference? Dissimilar development of the organ of Marriage, answers Dr. Vimont, and this is echoed by many other phrenologists. Let us inquire how this answer agrees with fact.

Many individuals marry for reasons other than love; but we will pass them over as unworthy of further notice.

All my observations go to prove that these differences have a complex origin, and that Amativeness, Philoprogenitiveness, and Adhesiveness act leading parts, while Continuitiveness takes a prominent position also.

If there is a fundamental faculty of marriage, it ought to bear the characteristics of one, and be able to act independently, and incline to wedlock without being influenced in the least by the solicitations of Amativeness, Philoprogenitiveness, and Adhesiveness. I frankly admit I never heard of an instance where such a propensity was manifested, and I do not believe any person else ever did. If ever a man married, who was insensible to the feelings which it is the function of these organs to inspire, he has been actuated by other motives than a desire to unite for life with one of the opposite sex. In fact, men having small

Amativeness are commonly in no hurry to marry, when it is very small celibacy is preferred, and some men, like Dr. Hette (see p. 183) cannot even understand how any sensible person can spend his days in the society of women. But, contrariwise, the number of persons who marry having that portion of the cerebrum small, which is said to be the organ of Marriage, is almost limitless.

The habits of animals furnish the most direct evidence in proof of an organ of Marriage. The skulls of those that unite for life are said to be uniformly large at this part, which fact undoubtedly indicates a special trait, and the question suggests itself: Is this enlargement an independent faculty, or an indication of an unusual size of Philoprogenitiveness? Now, it is a significant fact that the male of animals which cohabit indiscriminately possess no parental feeling, whereas those that live in wedlock assist in rearing their young, and give unmistakeable proof of attachment to them. Another question which presents itself is, do the males of marrying animals possess as large organs of Amativeness as those which do not marry? Dr. Vimont's experience does not supply any answer to this question, and is therefore incomplete. If the male fox, whose female is only in condition at certain periods, is as amorous at all times as the male dog, which courts the favors of the first female of his species that he meets with that is in love, it follows that he is called upon to exercise great self-restraint in continuing faithful to his wife, even more than the married man. Either this is the case, or what is more consonant with nature, the propensity is adapted to the condition in which marriage places him.

Taking this view of the case, and coupling with it the fact that marrying animals have large Philoprogenitiveness, we have the clue to the marriage instinct—that it is the product of more than one predominant faculty. These and other considerations prevent me concurring with the views of Dr. Vimont and his followers.

Jealousy is said to arise from a large development of the organ of union for life; but my experience leads me to the very opposite conclusion. It requires many faculties to act in combination to cause the sexes to be jealous of each other's faithfulness; but, as a general rule, the chief prompter is Amativeness.

SELF-PRESERVATIVE GROUP.

5. Defensiveness.

Defensiveness or Combativeness is situated behind the upper half of the ear. Its peripheral expansion and the breadth of the head indicate its size. Its function is essentially what the name I have given it implies—to defend self, family, friends, home, country, rights, principles, and truth, against error, oppression, insult, and injustice of every kind.

Dr. Gall first named it Courage, but afterwards "the Instinct of Self-Defence and Property." Dr. Spurzheim very properly took exception to these designations, but unhappily called it Combativeness, wherein he by no means displayed his usual analytical skill. All these terms refer to certain modes of action, instead of the primitive power.

Courage is a compound quality, and Self-Defence is too limited. The faculty extends its operations to every conceivable kind of defence which the human mind can feel interested in. Combined with active Benevolence, it braces the nerves of the philanthropist to enter dens of infamy and nurseries of crime, to encounter pestilence and death in efforts for the benefit of his fellows, and, when Veneration and Marvellousness are added, it gives the missionary courage to brave the dangers and vicissitudes of foreign climes, and the brutal tendency of the savage, that he may hoist the banner of Christianity and civilization. Acting in concert with Destructiveness, it emboldens the huntsman to enter the jungle and prairie, to destroy the man-eating tiger, and protect his fellows from the ravages of destructive brutes. It renders invaluable aid to the soldier in the defence of his country, imparts the charm of calmness amidst storm and tumult, and when the very air is loaded with messengers of death. It does not, however, remain within the confines of defence. When large, it prompts to attack, and feels pleasure in the work, imparts a hostile, aggressive spirit, and, when the moral powers are in abeyance, and it is stimulated by Approbativeness, victory in the prize-ring is often the aim of the aspirant's ambition.

It was studying the pugnacious manifestations of this faculty that induced Dr. Spurzheim to name it Combativeness. This term is decidedly more objectionable than Self-Defence. There cannot be a primitive power having fighting as its special function; but defence frequently leads to combat.

Mr. Robert Cox considers that this power after being

stripped of its accidental modification is neither more nor less than "THE INSTINCT OR PROPENSITY TO OPPOSE, OR OPPOSIVENESS." I am inclined, however, to go further down the scale of quantitive emotion to seek its fundamental quality. Opposiveness is obviously the result of a higher degree of energy than the simple propensity to defend, and takes more irritation to excite it; and a little stronger irritant still is requisite to provoke to combat; either originating in some external cause—such as an attack on our rights, prerogatives, and possessions—or internal stamina, consequent on largeness of size and healthy vigour, or the stimulus of other faculties. I therefore prefer the term Defensiveness.

This organ is not always the beginner of opposition, nor the continuer of it. Offended Conscientiousness, Self-Esteem, Approbativeness, and Firmness, are very often the prime movers, and Acquisitiveness, perhaps, not less so. These powers may call upon a moderately developed organ of Defensiveness with an imperious authority and force, that precludes the possibility of it remaining neutral.

Cowardice and Courage are both compound qualities, but Defensiveness is undoubtedly the foundation of them. It is desirable to distinguish courage from dogged determination, self-possession, and love of glory arising from predominant Firmness, Self-Esteem, and Approbativeness, and from the rash impulsiveness induced by active Destructiveness and small Cautiousness. Cowardice and fear are distinct qualities. A soldier in the battle-field may be in a terrible state of fear through the irritation of large Cautiousness, or Awe, yet give no sign of cowardice, but firmly stand to his post while the booming of ordnance and the report of small-

arms send successive shocks of trepidation through the nervous system. The state of such a person can hardly be realized, and he exhibits infinitely more true courage than the reckless bravado of small Cautiousness and large Defensiveness.

An ample development of Defensiveness is an indispensible requisite in the battle of life. It supports the mind under trying circumstances and in struggling with difficulties, and gives it the calm composure of self-reliance. Those who are deficiently endowed with it may struggle and conquer, but it will be at the expense of great nervous irritability, discomfort and vital force—the mind gains a victory, but the body sustains an irreparable defeat. A very large development unsettles the mind by a too keen sensibility to insult, and a wrangling contentious spirit.

All animals that are distinguished for a hostile, fighting propensity are found to have the organ of Defensiveness predominantly large, whereas it is small in the non-fighting species. I have the skull of an English terrier who would not fight, and persistently carried out the principle of non-resistance. This animal would kill vermin, but evidently did not consider fighting any part of his duty. The organ of Defensiveness in his skull is fully developed, but Cautiousness is very large. Defensiveness is large in figs. 32 and 41, and small in figs. 31 and 40.

E. The Centre of Energy.

The Centre of Energy is treated at some length under the head of Energy and Endurance (pp. 92–7). It is situated

at the base of the posterior lobe, immediately behind Defensiveness.

All persons of great muscular power, activity, and endurance, that have come under my notice, have had this Centre largely developed, and those who have had it small were weaker, slower in their movements, and less enduring.

Its function, therefore, appears to be in direct connection with the muscular system ; but whether it exercises control over the muscles, or is the source from which they derive vital force, is not yet ascertained.

The regulation of the movements of locomotion is generally believed to depend upon a special portion of the brain, and Flourens and Majendie, the eminent physiologists, attributed this function to the cerebellum. Dr. Carpenter takes the same view, but thinks there is nothing incompatible with it and Gall's location of the Amative propensity ; and some phrenologists think the cerebellum performs this double office. Some light is cast upon the subject by phreno-mesmerism. I have experimented phreno-mesmerically on hundreds of individuals, but have never succeeded in exciting any muscular action by manipulating the cerebellum, except such as manifested amative feeling. The heads of several young men are sensitive to my touch whilst awake, and conscious of every emotion induced by the magnetic influence, and they have repeatedly described their feelings to me at the time ; and, I may state, that they were ignorant of the nature of my investigations. On placing my finger on the Centre of Energy they soon became restless, and expressed a desire to move about, which feeling has many a time overcome their power of restraint when I have

continued to keep my finger on this part of their heads ; and I have seen mesmerized patients rush from the platform of a public hall amongst the audience, and go through antics like the gambols of young animals, as though they were propelled to action by a sudden discharge of nerve-force into the muscles.

I have often found mesmerized persons having a morbid tendency to persistent local rigidity, particularly of the eyelids, that withstood all the usual methods of demesmerization, besides others which my experience suggested ; but I discovered that, by manipulating the Centre of Energy phreno-mesmerically, I could easily subdue cases of this kind, and that the most rigid muscle became flexible almost instantaneously.

It may, perhaps, be as well, before proceeding further, to anticipate an objection against phreno-mesmerism. It is occasionally urged by disbelievers that the mesmerist does not excite the mental organs to action by touching the head, but that he impresses the mind of his patient with his own emotions, desires, and ideas, by means of the sympathy which exists between them—or, in other words, the operatee reflects the state of the mind of the operator. Were this the case, it would matter little what part of the head the operator touched ; he would always be able to command an expression or action in consonance with his mental condition at the time. I, however, during a long career as a mesmeric experimentalist, and after repeated trials, have utterly failed to accomplish any such feat ; but many a time, having accidentally touched the wrong organ, it responded, and manifested its own function, instead of the one I had intended to excite.

6. Destructiveness.

The situation of Destructiveness is very conspicuous. It lies immediately over the opening of the ear, and extends a little in front and behind it.

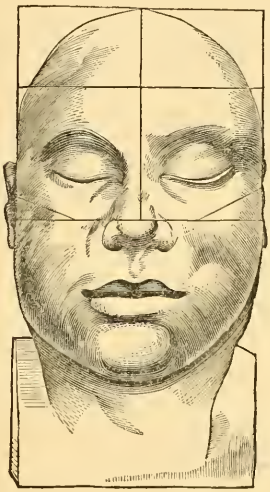


Fig. 39.—Wm. Palmer.

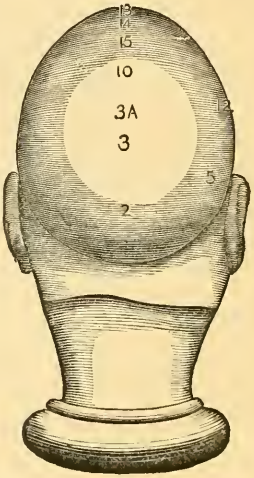


Fig. 40.—Gosse.

There is something exceedingly repugnant to our finer feelings in the idea of man being endowed with an innate power, which makes him behold the taking away of life with indifference, and sometimes to feel pleasure in the ghastly spectacle; and, horrible to contemplate, that the emotion occasionally rises so high as to arm the assassin, and impart a demoniacal thirst for the life's blood of one's fellows. The

very thought sends a repulsive thrill through the system. Yet the feelings must not be allowed to take possession of the judgment, and to blind us to obvious facts.

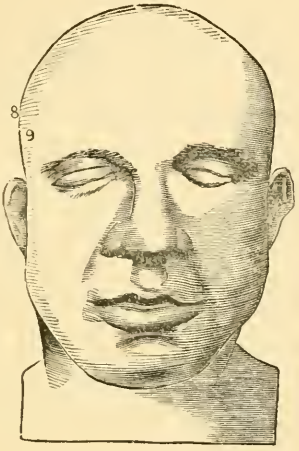


Fig. 41.—Linn, pugilist and parricide.

The term Destructiveness is perhaps rather too expressive, and in consequence of its being frequently coupled with murder, is apt to convey a wrong impression, and lead the mind erroneously to consider that which is an effect of great energy and uncontrolled passion, to be the primitive aim of the faculty, instead of its abuse. The existence of the fundamental power is fully established; let us then inquire into the nature of its function—why the Creator endowed man with a propensity which, under certain conditions, leads to the perpetration of the most deliberate and revolt-

ing deeds of cruelty and murder? We may rest assured it is for a beneficent purpose—that this innate power is necessary for our present state of existence.

When we look around us and contemplate the phenomena and ever-varying changes of nature, we perceive decay, destruction of qualities, and death everywhere incessantly taking place, which would make us the most miserable of beings if we were not constituted in direct relation thereto.

We are surrounded by an atmosphere of antagonistic forces. One producing, another destroying; one developing in vernal bloom, another in the ravages of decay; one building up, another pulling down. One class of animals live on the destruction of another, and they in turn are devoured by others. If man were not adapted to this universal transforming process, he would be appalled, and unfitted for existence. He would be incapable of protecting himself against the rapacity of the brute. Nay, the very insects would torment him to death if he could not shield himself without taking their lives. Kill them he could not. He might try to defend himself from attack, and perhaps injure and kill in the *melee*, but to deliberately kill with malice aforethought he never could, and, with active Benevolence, a hundred reasons would incite him to save the lives of mere vermin.

A literary friend of mine, who has a small organ of Destructiveness and large Benevolence, gives the following interesting description of the effect of this combination on his character in his school-boy days :—"A constitutional want of development of Destructiveness has been the bane of

my life. The school of St. Andrew's where I was taught was situated a couple of miles from home. In the summer, after rain, the hollows in the road were filled with water, and it often happened that insects which had been caught in the storm were struggling for life in these pools, and many a time have I risked a flogging for going into school an hour late through rescuing poor flies from drowning. When I saw a fly wallowing in a pool I must needs take her out—I couldn't pass her without doing so—and then I thought, well, it isn't fair that, because this one is large and prominent, I should overlook the poor little ones which cannot help being little; and every visible living thing battling with the destructive element must be rescued, and before I could get to school, as I have said, I would be frequently an hour late. Well, to this day, when far past the meridian of life, this feeling haunts me still. It gives me the greatest pain to kill even noxious creatures. It is not the pain they feel that prevents me only, but I cannot think of taking away the pleasure that existence gives them, and it even hurts me to destroy their beautiful forms."

Without a faculty of Destructiveness, man would be ill-suited to this world—his mind would ever be on the rack. Death in all its forms would appal him, and embitter his life, and pain would have a more barbed sting. Nay the fading flower, the withered leaf, and bleak winds and nipping frosts, the death knells of marvellous forms and beauties of nature, would be laden with human suffering. Want of Destructiveness would make antiquarians and archæologists of us all. The omniscient and bountiful Creator has provided against such shocks of discomfort, and endowed man with powers

every way fitted for his condition, the destructive forces of nature not being overlooked.

Man, moreover, is not simply a passive spectator of the natural destruction of qualities and forms, but is called upon to destroy—to take an active part in the grand transformation. The form of one thing must be destroyed to construct another. The sublime aspect of the craggy rock gives place to beautiful statuary and architecture; the wild grandeur of forests is metamorphosed into objects of beauty and usefulness, and the shapes of thousands of things are changed by the all-transforming hand of man. And thus destruction and reproduction are alike the order of nature, science, and art. All that is obnoxious and inimical to the interests of man, as ordered by God, must be destroyed—vegetable, animal, and mineral—and those things also which are necessary for his comfort and sustenance require an active destructive propensity.

A good development of this faculty is also a pre-requisite for the surgeon. To make him calm amidst moans, suffering, and death; and guided by benevolence and intelligence to inflict present pain for ulterior good, with a skilful hand. The late Mr. J. Syme, professor of clinical surgery in the university of Edinburgh, had, besides his many eminent qualities, a large development of Destructiveness. Operative surgery is a delightful exercise to some; but others never use the knife except in cases of absolute necessity, and then are prompted by Benevolence, and supported by Firmness. The organ of Destructiveness is generally large in the former, but small in the latter.

All persons fond of taking life and inflicting pain will be

THE LATE PROFESSOR SYME.

The portrait of Professor Syme denotes him to have possessed a large perceptive intellect, great firmness of purpose, and constancy of effort in the pursuit of his aims. The organs of Size, Weight, Firmness, and Destructiveness are very large, while Self-Esteem and Constructiveness are rather large, which would fit him for operative surgery. Firmness, Destructiveness, and Self-Esteem would impart steadiness amidst agonies and groans, and Weight would give manipulatory skill.

Portrait V.

found to possess a large organ of Destructiveness, so are those who swear savagely, public speakers who indulge in violent harangues, and preachers that thunder out the terrors of the law and delight in vivid descriptions of hell-fire torments, indicate large and predominant activity of this organ; also, those who break and mutilate for pastime. But the abuse of the faculty culminates in murder. Numerous motives may prompt the deed, but it requires Destructiveness in great energy to strike the fatal blow, and even then it takes the assistance of a low moral nature, or a small benighted intellect, or both, before it can perform the horrid act. Deliberate murderers, without exception, that have been adjudged responsible for their acts, have had this organ large. (See examples and illustrations, p. 163.) Notwithstanding, some people, who have very large Destructiveness, are neither murderously inclined nor cruel. The propensity being under the control of a vigorous, well-cultivated intellect and high moral sentiments, they are peaceable, good citizens. And some, having a much less development of this organ, are monsters of cruelty and savage brutality. This is caused by small moral powers and large animal and selfish propensities, bad training, and vicious associates. The cast of Dr. Spurzheim in the Phrenological Museum of Edinburgh is wider over the ears than any I have measured, being 7·4 inches; but he was not destructive, although warm in temper. Having been attacked by some opponents on one occasion, Mr Combe remarks, "He said to me, 'I am too angry to answer that attack just now—I shall wait six months;' and he did so, and then wrote calmly like a philosopher."

Active Destructiveness may be manifested in various ways, according to the faculties with which it acts in combination. With Combativeness and Benevolence, it aids the statesman in destroying worn-out institutions, associations, laws, and every thing inimical to the interests of the country and the general weal. With large Veneration, it tortures the body for the good of the soul—uses the thumb-screw, the rack, and all the hellish engines of the inquisition; ties the martyr to the stake, lights the fire and liberates his imprisoned spirit by the consuming flame. With disappointed ambition and offended dignity, it harbours malignity, and pants for vengeance. It sharpens the edge of sarcasm, gives point to wit, and a rasping keenness to the reformer's denunciations of tyranny and oppression; and causes the lover of truth and justice to boil with indignation against whimpering hypocrites, and to severely castigate all humbugs and dissemblers so far as he has opportunity.

The size of this organ is commonly estimated according to the width of the head between the ears, great breadth being considered a sure sign of large size, and the converse of this being predicated of narrow heads. But this is not the case. Very many people's heads are wide over the ears who are mild in temper, and abhor cruelty; and others having narrow heads are impulsive, cruel, and implacable. These facts are stumbling-blocks to thousands. They are accounted for by breadth only giving one portion of the organ's dimensions. Its depth, which in reality is its length, is overlooked. It would be quite as correct to infer largeness of Benevolence, Veneration, and Firmness from a broad and very low coronal region. The height of the head is the

measure of power of those organs, and so depth of the base indicates acuteness and strength of Destructiveness. See remarks in the review of measurements (pp. 164-6) and read again observations on the phreno-metrical angle, and the most central point from which to measure the length of an organ. Besides the examples at p. 163, the breadth of Palmer the poisoner's head and Linn the pugilist and parricide's, may be contrasted with Gosse, the benevolent banker's. All the engravings are drawn one-fifth the size of nature.

Mr. William Crisp lately presented to me several skulls of animals, with a narrative of their history, which are excellent specimens of comparative anatomy. One is of a bull-dog that was executed for his destructive and worrying propensities. Mr. Crisp, on examining the brain, found the convolutions corresponding to the organs of Destructiveness and Alimentiveness on both hemispheres much diseased, and the internal table of the skull greatly discolored around the seat of the diseased brain, which discoloration still remains. He also gave me the loan of other specimens, among which is a skull labelled "Savage Ape." This skull is very wide over the orifice of the ears, narrow at the parietal eminence, and greatly depressed at the top of the forehead.

6A. Alimentiveness. C. Bibativeness.

This is the organ of the instinct which prompts to the taking of nourishment. Mr. Combe, Dr. Hoppe, of Copenhagen, and Dr. Crook, of London, appear to have been, un-

known to each other, simultaneously investigating into the nature of the functions of this faculty, and the locality of its organ. Dr. Hoppe, however, was the first to publish his views on the subject, which appeared in two contributions to the *Phrenological Journal*, vol. ii., pp. 70 and 484, dated December 1823, and December 1824. In the latter he says, "I have been led to think that the place where the different degrees of development of the organ for taking nourishment are manifested in the living body, in man, is in the *fossa zygomatica*, exactly under the organ of Acquisitiveness and below Destructiveness." He had observed great breadth of the head at this part in persons given to gluttony and ebriosity, and the opposite conformation in those who were abstemious, which is in accordance with the observations of investigators generally. Many cases are recorded of extraordinary voraciousness being caused in man by the disease of this organ; and the bull-dog, mentioned under the head of Destructiveness, is an illustration of similar effects in animals. He rushed amongst some pigs in a lane, and seized one of them, and began to worry it. The pig ran home for protection, while its vicious antagonist held on, and continued to tear its flesh until he was beaten off. He immediately after went and seized another pig, and commenced worrying it also, but was captured and destroyed.

It is almost needless to add, that very great individual differences exist with respect to love of eating and drinking, for this fact is of common observation. Some persons appear as though they were controlled by a gormandizing propensity, and their all-absorbing thought is luxurious living. While they greedily devour one meal, the composition of the

next occupies their mind, and causes them to look forward to the enjoyment of a favorite dish with Epicurean anticipations. They reverse the order of nature, and live to eat, instead of eating to live. Others are equally abstemious, and restrict themselves to plain wholesome food, which they partake of in suitable quantities at proper intervals. This dissimilarity, after making allowance for training and habit, will, in general, be indicated by the contour of the head. The size of this organ is in proportion to its depth below the floor of the orbits, and the breadth of the head the same as in the case of Destructiveness.

The experiences of some phrenologists lead them to consider the sense of nourishment as being two distinct faculties —one giving an appetite for, and inclining to take solids, and the other liquids. Messrs. Fowler and Wells stand prominently forward in advocating this view. They place the latter in front of the former, and name it Bibativeness (F, model bust). I fully concur in this division and location, excepting, perhaps, that I should be inclined to consider Bibativeness to dip a little lower down than Alimentiveness.

The experience of my friend bears directly on this subject. As already mentioned (pp. 56, 7), he has suffered grievously since boyhood from weak digestion, and for several years there has existed a direct sympathy between the state of his stomach and the organ of Alimentiveness. He never could digest liquid food so well as solid, and he has had to abstain from broths and soups, and latterly from milk also. He rarely ever takes a drink of any thing at dinner, and is obliged to restrict himself to about half-a-pint of infusion of tea or coffee twice a day. But he had not the

remotest idea, until about two years ago, that this peculiarity might originate in the particular conformation of his brain. I may repeat, that he has a distinct consciousness of the activity of almost every faculty, and especially when they are either fresh and craving for exercise, or are fatigued and demand rest. Sometimes he is attacked by indigestion of liquids, and at other times more especially of solids. When he is suffering from indigestion of liquids, he feels an aching in the anterior portion of the organ of Alimentiveness and deep down at the centre of the zygomatic arch, which part is sensitive to the touch. When the affection takes the form of unusual difficulty in digesting solids more than liquids, then the aching is felt in the posterior half of Alimentiveness. Prolonged reading and study always cause a pain in the cardiac extremity of the stomach; sometimes a few minutes will effect this result, and at other periods it takes an hour or two. The reason of this is, the organ of nutrition being small, it is unable to supply the stomach with a sufficient quantity of nervo-vital force to carry on digestion vigorously; and, when the intellect is active, the first and best supplies of this influence are demanded by it, and the other parts suffer proportionately. During the last six years mental labor has produced pain in the organ of Alimentiveness, as well as the stomach. The following measurements show this organ to be small in my friend, and the anterior portion, or Bibativeness, as I shall hereafter call it, is considerably the smallest. His phreno-metrical angle is 25 degrees, and the width of his head at Bibativeness 4·4 inches, and at Alimentiveness 5 inches. This is just what might have been inferred from his experience, on the sup-

position that the sense of nutrition is divisible into two organs. I have observed that the heads of persons having a constitutional tendency to dyspepsy are, as a general rule, narrow at these parts, and that the middle lobe does not dip much below the frontal; and I am fully convinced, that the digestive power of any individual may be inferred from the comparative size of the above organs. I have not invariably found, that persons who have a rather large development of these organs eat a large quantity at a time, but they seem to extract the largest quantity of nutriment from what they do eat.

7. Secretiveness.

Secretiveness is situated immediately above Destructiveness, but extends a little further back, and its size may be estimated by the same means as in that organ. Its function is to conceal feelings, thoughts, design, deeds, and things. Openness displeases it, and it tries to protect itself from annoyance by influencing the other faculties to restrain themselves from revealing their state, and when predominantly active, it constrains them to do so—in other words, an unreserved disposition is very repugnant to it, and produces an intensely disagreeable affection, which causes the mind to shrink from incurring, and, consequently, to forego the pleasures derivable from openness or frankness.

People differ widely in the secretive faculty. Some are as transparent as glass, and can hide nothing; every look, gesture, word, and deed disclose the inward workings of the mind. Their emotions, purposes, and aims are reflected

with mirror-like distinctness. Frank and unsuspecting, they become the prey of the cunning, and suffer grievously through guileless simplicity and misplaced confidence.

A great variety of motives may suggest the propriety of secrecy, but they avail not when this organ is small. The enjoyment accruing from free communicativeness and sociability is too tempting for self-denial. Such persons are constitutionally unfitted for any avocation wherein reservation is requisite, or, in fact, ordinary circumspection. Some people are the antipodes of the preceding. They are an opaque-like mass. A dark obscurity hangs around all their performances. Every movement, saying, purpose, and plan is studiously hid from view, and that without any other motive than an instinctive propensity to conceal. Ask them the cause of their closeness, and they will probably reply that they don't know, or perhaps evade the question. Press for a more satisfactory answer, and the only reason you can extract from them, is their disinclination to act otherwise. In them this organ is large. Between these extremes there are many gradations of development of the organ, and a great variety of manifestation in consonance therewith.

An ample development of Secretiveness is necessary to give prudent reserve. Solomon says, "A fool uttereth all his mind, but a wise man keepeth it till afterwards;" and Burns thus advises his youthful friend :—

> "Aye free, aff han', your story tell,
> When wi' a bosom crony;
> But still keep something to yoursel',
> Ye scarcely tell to ony."

He had experienced the genial warmth of candour and the

icy chill of reservation, and commended the happy medium. But his keen insight into human nature and free intercourse with his fellows had taught him the necessity of discernment as well as closeness, in pursuing the journey of life, and he adds :—

> "Conceal yourself as weel 's you can
> Frae critical dissection;
> But keek through every other man
> Wi' sharpen'd, sly inspection."

As all is not gold that glitters, and light often allures into the bog, so a bland countenance is often a villain's mask, and approving words snares of the deceitful.

The openness of the indiscreet is taken advantage of by the selfish, and therefore Secretiveness is necessary for self-protection, to incite the intellect to study the natural language of the faculties, and learn how it reveals the inward workings of the mind, in order to guard us against evasion, dissimulation, and intrigue—the machinations of the crafty, and the treacherousness of hypocrisy. The adage, "Set a thief to catch a thief," equally applies to dissemblers. Knowing the deceitful operations of their own minds, they more readily detect similar traits in others than the candid and unsuspecting. Tact and talent should go hand in hand.

A large development of this organ is necessary in every department of life wherein disguise of expression is requisite. It takes a prominent part in all good acting, and enables the novelist to envelope the plot of his tale in mystery, create in the reader an intense anxiety to unravel its intricate windings, and to keep up the interest by fresh adventures and startling incidents.

It must, however, be borne in mind that concealment is the primitive function of Secretiveness, and that every mode of its manifestation besides is complex.

To successfully practise low cunning, duplicity, stratagem, flattery, dissimulation, backbiting, equivocation, overreaching, and lying, requires this organ in considerable size and activity, but it is not the sole source of these ugly features. They originate in predominating selfishness and very low moral feeling. "Observe," remarks Dr. Gall, "persons whose heads are very prominent on the sides and flattened at the top, and you will always find them false, artful, perfidious, venal, vacillating, and hypocritical."

Very large Secretiveness is compatible with the highest morality and true nobility, and is an essential qualification for many stations of life. The astute diplomatist honorably conceals his aims until the proper time arrives for disclosing them. The military strategist who conceals the strength of his forces, masks his batteries, and otherwise gains advantages over the enemy by feints and surprises, is deservedly applauded. The sagacious political leader may, with commendable tact, conceal his ultimate aims from his party until he has educated them sufficiently to receive them willingly.

The tact of many animals in securing their prey indicates great Secretiveness, and such have the organ large. The cat pretends to be asleep, and runs off with the meat the instant the cook's back is turned; and she watches mice with the stillness of death, lest her movements might be observed, and scare the little animals against issuing from their hiding-place. The wolf is also an excellent tactician; but the fox stands unrivalled for strategy and cunning, the

foundation of which is in large Secretiveness, although he is largely indebted to Caution and intelligence for his adroitness. I possess several foxes' skulls, and the organs of Destructiveness, Secretiveness, and Cautiousness are large in all of them.

Napoleon III., Count Bismarck (portraits 6 and 7), and Mr. Disraeli, M.P., have large Secretiveness.

8. Acquisitiveness.

Acquisitiveness gives the inclination to accumulate property. Many motives may incite to efforts for the acquisition of property—the honor and distinction it brings, the pleasures it purchases, and the happiness it affords in freeing its possessor from anxiety in gaining a livelihood, and placing him above the crushing thought of being dependent upon charity when age and infirmities incapacitate for earning sufficient to sustain life. But independent of these and every other incentive, a vast difference is observable in individuals from childhood to old age in their desire to gain wealth, which can only be accounted for by the existence of a primitive power. With some it is a continual thought—the great aim of their lives being to make and hoard money. Others are comparatively indifferent about money so long as they have the daily necessaries of life. In the former this organ is large, and in the latter small. When it is predominantly large and vigorous, it imparts a covetous, miserly disposition, and, when the organ of Conscientiousness is small, leads to unjust dealing, gambling and theft.

A few months ago I visited the dock extension works at

Chatham, which are executed by convict labor chiefly. At that time there were about 1400 convicts employed. The object of my visit was to make physiognomical observations of the criminal. My attention was attracted by the form of the head of one, a powerful young man, and apparently a good workman, whose organs of Acquisitiveness and Constructiveness were enormously large, and the perceptive faculties were well developed. I said to myself, "That is the head of an incorrigible burglar; he has an extraordinary desire to possess property, and considerable constructive talent to fashion instruments which will fit him for burglarious pursuits." I inquired into the nature of his crime and punishment, and was informed that he had been eight times convicted, and that he was then undergoing penal servitude for shop-breaking.

This organ co-operates with the intellect in the acquisition of books, maps, paintings, and every thing in which the faculties take delight. It stimulates the antiquary, minerologist, geologist, zoologist, and botanist to collect specimens; and gives a desire to retain them; for giving up the possession of anything annoys it. The desire to hoard, however, is not usually felt in an equal degree with the disposition to acquire. Two individuals may possess the organ of Acquisitiveness of equal size and vigour, yet one may be so parsimonious as to pinch himself of the common necessaries of life, while the other may expend his money freely and enjoy life. This difference is accounted for by dissimilarity in the development of other faculties; for example, Alimentiveness, Benevolence, and Approbativeness may be large and Cautiousness small in the latter, and the converse of this in the former.

A considerable endowment of this organ is necessary for persons who engage in commercial avocations, and when supported by a good intellect, large Conscientiousness and Hope, and fair Cautiousness and Self-Esteem, it fits its possessor for honorable and successful trading. It is situated in front of Secretiveness and above Alimentiveness ; and is very large in figs. 39 and 41, and small in fig. 40.

9. Constructiveness.

This organ is situated between Acquisitiveness and Tune, and above Bibativeness. In studying this faculty Dr. Gall directed his attention to the whole form of the head of mechanics, and was often struck by the circumstance that these artists were as large in the temporal region as in that of the cheek bone. He everywhere sought to make the acquaintance of distinguished mechanicians, and studied the form of their heads and moulded them. He met two very remarkable mechanics in whom the temples were swollen into a large round cushion, and after multiplied observations, convinced himself that the faculty of mechanics is a fundamental power.

The term Constructiveness is too limited, and yet it would be difficult to find a better. The faculty gives the inclination to use tools generally, to repair as well as manufacture, to pull down as well as build up. Sculptors, engravers, cabinet-makers and tailors, engineers and surgeons, artists and mechanics of every description, should have a good development of this organ, inasmuch as it adapts them for their work, and gives them pleasure in it.

Constructiveness does not invent nor design, this is the prerogative of the intellect; but it prompts the intellect to plan and lay out the kind of work it feels interested in executing.

It may be of service to correct here a misapprehension which prevails amongst mechanics with respect to the requisite talent for foremen. I have often heard them express indignation at such an one having being made a foreman whom they pronounced a useless fellow. "The idea," said one, "that that fellow has to be my master and pass judgment on my work, is monstrous; why, he never could finish a job properly in his life!" Now, if this affirmation were correct there certainly did appear to be some foundation for the sense of humiliation and indignation expressed at the thought of a skilled workman being placed under the supervision of an unskilled one; but it is based on a false idea, for it does not follow that, because a mechanic cannot use tools skilfully, he may not be able to form a correct judgment of workmanship; or that a good workman is the fittest person for a foreman. In fact, the converse is very frequently the case. A man having large Constructiveness and Imitation may be a first-class mechanic, and able to execute work skilfully after a pattern, but he may not have the necessary talent for designing and planning work, and the power of commanding; while an unskilled workman may possess these qualifications in an eminent degree. These talents are rarely possessed by one person, neither are inventive genius and practical talent, of which the late Robert Stephenson and Brunell are examples. The former was eminently a practical man, and the latter inventive. George

Stephenson had large Constructiveness, so has Sir William Armstrong, and their constructive talent is of wide-world reputation.

10. Self-Esteem.

The primitive function of Self-Esteem is very much what its name implies. To esteem, value, and respect one's self, to have confidence in our powers, and recline on our own resources. It desires authority and power, and an ample development raises a spirit of emulation which incites us to endeavour to merit honor and distinction, and the respect of our fellows. Although this faculty centres upon self, its action is modified by the other powers, and is manifested in a great variety of phases.

When it is under the guidance of the intellect and the moral sentiments, it dignifies, gives a noble and manly bearing, and a dislike for mean vicious habits. Combined with large Defensiveness, Continuitiveness, and moderate Cautiousness, it gives self-possession in times of peril.

It is highly advantageous to all public persons—preachers, lecturers, actors, and so forth. But when it is in great vigour and uncontrolled, it acts very offensively—contemning public opinion, manifesting overweening conceit, haughtiness, insolence, and many other unamiable traits. It makes children fancy themselves men and women, feel insulted when they are not treated accordingly, and leads them to resent the supposed indignity by disobedience. With a small intellect, it develops in Dundrearyism, stands upon a self-raised pinnacle, and exclaims, "Look here, 'fellahs!' see

how great a man am I, and 'when I ope my mouth, let no dog bark.'"

Want of confidence arises from deficient development of this organ, and with active Cautiousness, Approbativeness, and Veneration, humbleness of mind; add to this combination small Defensiveness and Destructiveness, then meekness will be the result, and, with small intellect, extreme simplicity, and want of self-respect when the animal propensities predominate.

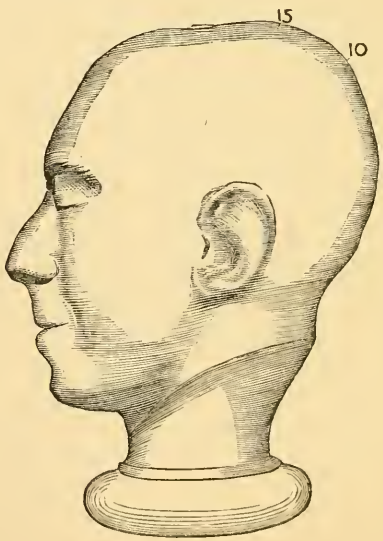


Fig. 42.—Prof. A—— (Self-Esteem and Firmness large).

Individuals who possess a large and cultivated intellect, large Self-Esteem, Defensiveness, and Continuitiveness, irre-

THOMAS CARLYLE.

The chief characteristics of Carlyle, as portrayed by this profile, are massiveness and power, wonderful mental grasp and vigour of conception. All the organs of the intellect appear to be large, Self-Esteem and Firmness very large, Sublimity and Continuitiveness large, which will impart self-satisfaction, determination, and constancy, and a keen sense of the vastness of God's wondrous works.

THE LATE PRINCE CONSORT.

This view of his Royal Highness indicates a delightful mixture of intellectual strength and humility, and shows him to have possessed a remarkable depth of penetration and desire for knowledge, with a talent to acquire it commensurate therewith. Individuality, Size, and Benevolence are very large. Veneration large, and Self-Esteem small.

sistibly impress the public mind with their importance, and command respect, and if their brains are of unusual size and their temperaments good, they become authorities in the department in which they labor, and leaders of the people.

Self-Esteem is situated in the median line at the top of the backhead, behind the crown, and when large gives a squareness to this part. Its size is in proportion to the distance it projects backward from the mastoid perpendicular line (C, fig. 25), and rises above the plane which divides the moral and basal regions.* Excessive use of the personal pronoun I indicates a large development of this organ. It is very large in Thomas Williamson, and he manifests the faculty in extraordinary vigour. He has recently published his autobiography (a cr. 8vo. tract), in eighteen pages of which the pronoun I appears 453 times! It is large in Professor A—— (fig. 42), and the smile of self-satisfaction which the bust represents shows the faculty to be energetic. Carlyle (portrait 9) also has it large, and his writings abound with passages indicative of self-complacency and the high estimation in which he regards himself; although his large moral powers subdue its activity, and his massive intellect naturally begets admiration. The Rev. C. H. Spurgeon is another example of the correspondence between a large development and manifestation of Self-Esteem.

This organ was small in the late Prince Consort (portrait 10), and he was a pattern of humility; and Canon Kingsley (portrait 12) is of like mind and development.

* Hereafter the division lines will be called Base plane, Top plane, Middle plane, Zygomatic perpendicular plane, and Mastoid perpendicular plane; but abbreviations will be used—thus, B plane, T. plane, M. plane, ZP plane, and MP. plane.

11. Approbativeness.

Approbativeness produces a desire for the esteem and approbation of others, and prompts us to endeavour to accomplish the aims of our ambition, but the means it adopts for this purpose depend upon the faculties with which it acts. When acting in combination with vigorous intellectual and moral powers, it manifests laudable ambition—emulates distinction in learning, literature, the arts and sciences, and for good deeds; but when these powers are small, and too feeble to direct Approbativeness to proper pursuits, it tends to produce vanity. The rich endeavour to attract admirers by the magnificence of their dwellings, splendid equipages, fashionable costumes and jewellery; the poor adorn themselves with gaudy finery and other bawbles; and those who possess small Self-Esteem beck and bow with extreme servility to gain a note of admiration. Again, when this combination has only the support of very small Conscientiousness, it gives birth to the most despicable traits—jealousy, hatred, falsehood, misrepresentation and slander, and tries to rise in estimation by blasting the fame of rivals.

Self-Esteem gives the assurance of self-sufficiency, Approbativeness reclines on public opinion for an estimation of merit. Should an individual, having the former organ large, not be commended, he considers the cause to arise from ignorance of his merits or jealousy of his fame, and he boldly denounces the injustice he supposes himself to have received. But the person in whom the latter organ is large feels acutely. Rebukes and unfavorable criticism

cut to the quick, and make him writhe under a feeling of abasement.

Active Approbativeness tries to merit favor and to repress every emotion which would be calculated to forfeit it, hence this faculty exerts a great influence over character. (See remarks on this subject, p. 210.)

Approval may be desired as a reward for noble acts of self-sacrifice, deeds of daring, honorable enterprise, and generous acts, or it may be sought for in disreputable and criminal doings. So long as some gain notoriety, they are unscrupulous as to the means employed. Culprits in walking to the gallows, with the death-knell sounding in their ears, have been known to exhibit considerable vanity. This was the case with Dr. Pritchard, in whom Approbativeness was very large.

Parents, guardians of youth, and teachers ought to know the functions of the faculties of Approbativeness and Self-Esteem, and be able to estimate the comparative size of the organs, to better adapt themselves for teaching and governing. A great deal depends on the proper management and training of these faculties in the young for their future personal comfort and usefulness. This organ is situated at the upper and lateral part of the backhead, at each side of Self-Esteem. It is large in Williamson and small in Kingsley.

12. Cautiousness.

Cautiousness is situated directly above Secretiveness, and is easily distinguished by the points of ossification, they being nearly in its centre Its dimensions may be estimated

by the distance it extends laterally from the median line, and behind a vertical plane passing from the orifice of the ear to the middle of the top of the head.

The faculty of Cautiousness gives the sense of danger, and when its organ is proportionately developed and vigorous, produces caution and forethought, disposes to calculate the effects of words and actions, to manifest a circumspect demeanour, and keep the tongue under proper restraint. When it is predominantly large and vigorous, it occasions apprehensiveness, indecision, and an undue sensibility to alarm; but, when it is small, the feeling of danger is deficient, and a consequent want of forethought and care results—the other faculties being unrestrained, act according to their natures and vigour. Hasty words and rash deeds often characterize people constituted thus.

Although this organ is one of the chief of the restraining group, its action, like all the others, is greatly modified by those with which it acts in combination for the time being. Large Self-Esteem, Firmness, Combativeness, and Hope tend to produce stability and confidence in people having Cautiousness very large; but recklessness in those in whom it is small. When the latter organ is large and the former are small, it produces gloomy forebodings, irresolution and timidity. Children that have this combination are long in learning to walk, and bashful and shy if their Approbativeness be large also. To encourage children so constituted, and to inspire them with emulation and self-confidence, should be the constant aim of their parents, guardians, and teachers.

The crania of animals and birds that set watches to give

warning of the approach of their enemies indicate a large development of the organ of Cautiousness. Dr. Gall gives the following interesting fact in connection with the forethought of animals:—"The fox, after scenting the wild-boars, tries, before undertaking to seize one of the young, to leap into a tree with a load nearly equal to the weight of one of these creatures, so as to be sure to be able to escape the pursuit of the sow. When he happens to lose his prey in leaping, he measures distances, and practises himself in leaping over them, in order that he may be more successful another time."

This organ is large in the skull of Hette (fig. 31), Mr. K—— (fig. 33), and small in Gosse (fig. 40).

13. Benevolence.

Benevolence produces feelings of amity, compassion, and good will, or a desire for the happiness of others, and disposes us to perform acts of beneficence and philanthropy. It is the "good ground" spoken of in the parable of the sower, in which the seeds of Christian charity take deep root, and bring forth an abundant harvest of kind words and good deeds. It goes out from self and seeks pleasure in contributing to the weal of the afflicted, the needy, the infirm, and the distressed, in clothing the naked, feeding the hungry, comforting the dying, solacing the bereaved. It produces clemency, and leads to the fulfilment of the great commandment, "Love thy neighbour as thyself."

Large Acquisitiveness, Alimentiveness, and Approbativeness, produce the thorns which spring up and choke the

plant of Benevolence. An object of charity being presented, Benevolence instantly responds, and thrusts the hand into the cash pocket; but Acquisitiveness seizes the arm, and cries, "Hold on, that is my money, and I have other uses for it. I don't intend dying in a workhouse if I can help it; but, if I were to concur in your foolish penchant for giving away, I might calculate on finishing my course in an establishment of that kind." "Right," exclaims Alimentive-

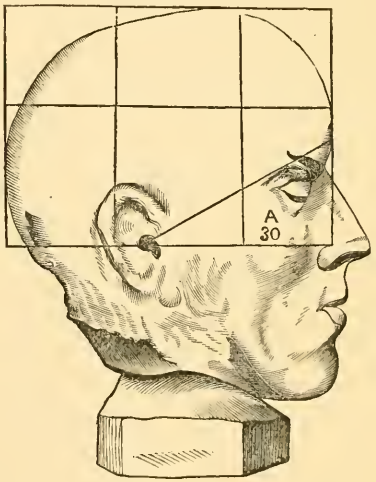


Fig. 43.—Gosse (Benevolence large).

ness, "and I should have to live on gruel, weak tea, without milk, and dry bread, instead of sitting down to a well furnished table—the folly of Benevolence is preposterous." "Quite so," chimes in Approbativeness, "and if it is not

put a stop to, I may have to don a suit of corduroy instead of broadcloth." Thus Benevolence is outvoted and restrained by the united energies of these organs, although it may be larger than any of them singly. This organ is often prompted to action for selfish purposes by active Approbativeness, causing individuals to contribute to charitable institutions with the view of their names being pub-

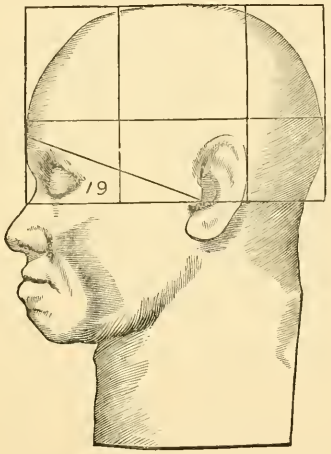


Fig. 44.—Eustache, a benevolent negro.

lished in subscription lists, and so receiving praise. In cases where these two organs are much more vigorous than Conscientiousness, they may incite to reprehensible deeds; such as giving largely instead of paying off just debts—robbing some to benefit or please others.

Predominant Benevolence tends to prodigality in almsgiving. Mr. Gosse (fig. 43) was of this stamp, and it is said he gave away two fortunes, and ultimately had to be put under the care of guardians. Merchants and shop-keepers having large Benevolence, moderate Acquisitiveness, small Cautiousness, and small Hope, frequently ruin themselves by giving credit.

Entirely different characteristics are manifested by individuals having a small organ of Benevolence. They are cold, unsympathetic and indifferent to the welfare of others, and with large Acquisitiveness are close-fisted, with large Self-Esteem tyrannical, with small Conscientiousness partial and unjust, with large Destructiveness cruel.

This organ is situated in the upper anterior portion of the coronal region at each side of the median line. It is extremely large in Gosse, and his Cautiousness and Firmness were very small (fig. 40). There is a peculiarity in this bust. Benevolence is elevated so much more than Firmness, as to be distinctly seen from behind. I wrote the numbers of the organs situated in the median line on the bust, and got it photographed, and took especial care to have the camera fixed on a level with it; and the figures are engraved exactly as they appeared on the photograph. The head of Alexander Miller (fig. 47) is of an opposite type.

Benevolence is very large in the head of Christ, the late Prince Consort, Canon Kingsley, and Dr. Guthrie (portraits 10, 11, 12, 13); also in Eustache, together with the whole moral region, who was greatly distinguished for morality and benevolence. "During the massacre of the whites by the negroes in St. Domingo, Eustache, while in the capacity of

CHRIST.

This is a faithful transcript of a photograph, said to have been taken from a painting, that is represented as a true likeness of Christ. Whether it delineates the form and expression of the Great Teacher or not I cannot tell, but, as a practical phrenologist, I pronounce it to be a delineation of the highest moral and religious type, and just such a head as it might be conceived Christ would be likely to have.

REV. CANON KINGSLEY.

The above portrait gives evidence of a large and vigorous intellect, a refined taste, acute observing powers, and philanthropic tendencies, lively devotional feeling, and a desire to do good. The head is of an excellent moral and intellectual type. Kingsley will be inclined to preach humility as a cardinal grace.

a slave, saved by his address, energy, and devotion, the lives of his master and upwards of 400 other whites, at the daily risk of his own safety." It is large in Swinbourne (portrait 4).

14. Veneration.

Veneration is situated in the middle of the top of the head, behind Benevolence. It produces respect and reverence in general, but does not point out the beings or things that are worthy of respect, nor the manner of manifesting it. This is determined by the capacity of the intellect to form correct judgments by education, habit, custom, and other circumstances. When directed by an enlightened understanding to the Creator, it leads to adoration; but, under the guidance of a benighted intellect, may give rise to idolatry. It respects power and authority, and leads to obedience, and, when predominantly active, tends to conserve old institutions, hold with death-like tenacity to ancient opinions, creeds, and customs that have nothing but their antiquity to recommend them; and it is the basis of numerous abuses, such as slavish deference to rank, hero-worship, and opposing improvements. Every discovery or new thing is looked upon as an innovation that should be opposed. When developed in due proportion, and properly controlled and directed, it respects genius and virtue, and the noble-minded of every class. Combined with small Self-Esteem, it produces a humble disposition; while, with large Individuality, Form, and Size, it often imparts a fondness for antiquarian and archæological pursuits.

Individuals who have a small development of Veneration are not sufficiently sensible of respectful and reverential feelings; they manifest an indeferential demeanour, and, with deficient Cautiousness, have a blunt, unguarded mode of address.

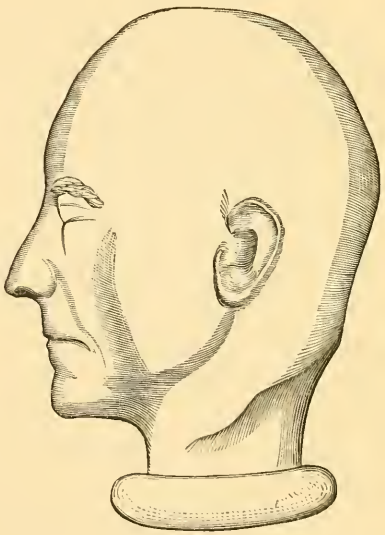


Fig. 45.—Joseph Hume, financial reformer.

A large development of this organ is a necessary qualification for preachers, plenipotentiaries, and secretaries of state for the foreign department. It is small in Earl Russell (portrait 15), and was the chief cause of his failure as a diplomatist. He has large Self-Esteem and Firmness, which

DR. MANNING, Archbishop of Westminster.

Has a large and exceedingly acute intellect and considerable energy, and large moral sentiments—the organ of Veneration being the largest in that region. Individuality and Eventuality are highly developed, and he has a favorable temperament for attaining intellectual excellence. The organ of Firmness is only of moderate size.

EARL RUSSELL.

This is a remarkable head, view it as we may. It is exceedingly large and indicates a powerful mind ; but it is unsymmetrical, and his lordship's disposition will be equally so. The intellect is large and capable of acquiring vast stores of knowledge. The organ of Firmness is enormous, and Self-Esteem is only second to it, but Veneration is small. The unequal development in the last mentioned organs unfits him for the Foreign Office. In dealing with foreign courts, his small Veneration would be incapable of imparting the necessary courteousness in the composition of his despatches, and his predominant Firmness would have a tendency to give them a tone of positiveness which might appear offensive, though unintentional on his lordship's part.

gave an offensive, although unintentionally, tone of authority and determination to his dispatches. He meant well, but did not express himself with that respectful courtesy which should always be observed in diplomatic circles.

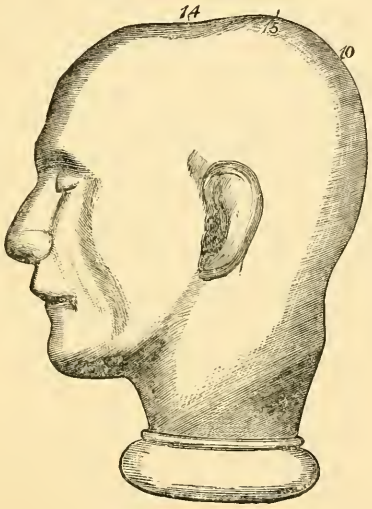


Fig. 46.—Rammohun Roy, the learned Orientalist.

This organ is also small in Swinbourne (portrait 4) and Rammohun Roy.

It is very large in the portrait of Christ, large in those of the late Prince Consort, Archbishop Manning, Canon Kingsley, and Joseph Hume.

15. Firmness.

The organ of Firmness is situated in the posterior portion of the top of the head, adjoining to, and parallel with Veneration. It produces an inclination to abide by the decisions of the mind, without regard to their nature—whether vicious or virtuous. When the intellect decides in favor of any thing, principle or course of action, this faculty supports it, and sternly resists all opposition to the attainment of its aim so long as the judgment remains unaltered, and thus far it tends to produce constancy and perseverance. But should the intellect reverse its judgment, Firmness, continuing to support it, changes also. A person may therefore have large Firmness and not be persevering, except for short periods. Pliability and vacillation, however, affect this faculty disagreeably, to avoid which it influences the judgment, in proportion to its energy and activity, against inconstancy.

As a rule, persons with large Firmness are steadier and more persevering than others who have a smaller endowment of it; but this rule has many exceptions, of which the annexed cases are examples.

J. B—— has very large Firmness, Conscientiousness, and Benevolence, large Cautiousness and moderate Acquisitiveness. He commenced business on his own account with a determination to sell for ready money only. His Firmness was soon put to the test. Being solicited for credit by a woman, who backed up her application by a pitiful tale, his sympathy was excited, and Benevolence said, "Let her have a few shillings' worth of goods, poor creature;" but Cautious-

ness said, "Be careful, you may lose the amount; and if you once commence to give credit, there is no knowing where it may end, or what it may lead to." "And, you must remember," suggested Conscientiousness, "you have got your own goods on credit, and if you do not sell them for cash, you cannot pay for them, and to give credit without security would be unjust to your creditors, as well as to yourself." Firmness supported this view, and decided the point. He respectfully refused the applicant, who turned to go away, but a tear in her eye, and a faltering tongue, excited his benevolence so strongly, as to cause him to reverse his decision, and calling her back to the counter he supplied her with goods. Similar scenes have since been acted and re-enacted between him and needy persons, or by hypocritical swindlers, for more than twenty years, resulting in bad debts, much anxiety, and comparative poverty.

G. A—— commenced business under less favorable circumstances, but with the determination not to ruin himself by giving credit. His organs of Firmness and Conscientiousness, Benevolence and Cautiousness, are only moderate in size, but Acquisitiveness is large. He has carried out his resolution, and saved money. What is the cause of the difference displayed in Firmness by these men? I answer, that it is the difference of the kind of influence brought to bear on the judgment. Benevolence and Hope in the former case appealed with greater energy than all the other faculties combined; while, in the latter case, predominant Acquisitiveness ruled. In general character J. B—— is firm, persevering, and constant; G. A—— inconstant and changeable. We here perceive that some persons may be

firm in general, but unfirm in particular; and others firm in particular and unfirm in general.

Dr. Spurzheim says, "This faculty contributes to maintain the activity of the other faculties. It gives constancy and perseverance. Its want renders men unsure, inconstant, and changeable, according to the other impressions."

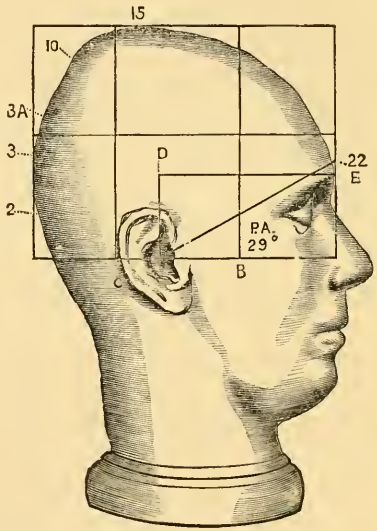


Fig. 47.—Millar, the Stirling murderer.

Mr. Combe makes the following remarks on Firmness:—"It gives perseverance however only in manifesting the faculties which are possessed by the individual in adequate strength. A person with great Firmness and much Tune may persevere in making music; diminish the Tune so as

to render him insensible to melody, and he will not persevere in that attempt; but if he has great Causality, he may be constant in abstract study."

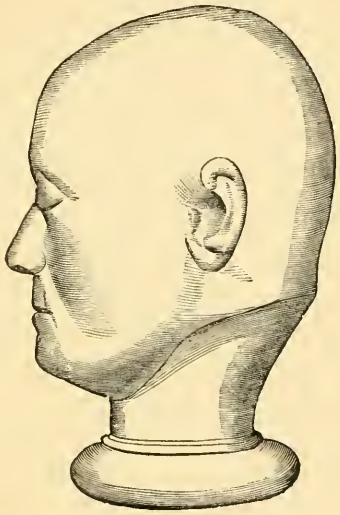


Fig. 48.—Dr. Gall.

Mr. Combe had probably observed individuals who were largely endowed with Firmness, and nevertheless were not persevering, for cases of the kind are very common; and he tried to explain away the apparent anomaly by the above remarkable qualification. The fact is, a person that is insensible to melody is idiotic in the musical sense, and will have no inclination to begin, much less to persevere in,

the study of music. Again, if Firmness only "gives perseverance in manifesting the faculties which are possessed in adequate strength," the strongest will receive the greatest aid, which will necessarily cause them to follow their natural proclivities. But this is exactly what Mr. Combe says is the effect of small Firmness. He says, "When" this organ "is weak, the individual is prone to yield to the impulses of his predominating feelings." Inconsistent teaching this! He further observes, "Dr. Gall justly remarks, that Firmness of character ought not to be confounded with perseverance in gratification of the predominating disposition of the mind. Thus, an individual, in whom Acquisitiveness is the strongest propensity, may, although Firmness be deficient, exhibit uneasy efforts to become rich, but he will be vacillating and unsteady in the means which he will employ; he will to-day be captivated with one project, to-morrow with another, and the next with a third; whereas, with Firmness large, he would adopt the plan which appeared to him most promising, and steadily pursue it to the end." Granted that an individual with the organ of Firmness deficient may persevere in making money, it does not necessarily follow that he will be unsteady in the means he will employ. Facts and reason are against the supposition. Cases like those which Mr. Combe depicts may occasionally take place; but various reasons suggest themselves against their frequent occurrence as resulting from small Firmness. Thus, if an individual were engaged in a profitable and otherwise satisfactory business, he would be unlikely to give it up, excepting for another which offered superior advantages, real or supposed. If his Cautiousness

were large, it would cause wariness, care, and hesitation in making a change; combined with large Acquisitiveness, it would suggest that "a bird in the hand is worth two in the bush," and would influence the judgment to decide accordingly. If to these faculties large Continuitiveness were added, there would be an antipathy to change manifested. Many other combinations of faculties might be suggested that would induce perseverance in the absence of active Firmness, but I forbear.

Mr. Combe's affirmation that a person "with Firmness large would adopt the plan which appeared to him most promising, and steadily pursue it to the end," is not borne out by fact, but, contrariwise, cases of an opposite character might be multiplied almost without end. One will suffice.

Mr. D. P——, a young man whom I know well, has large Firmness, Self-Esteem, Approbativeness, Hope, and Secretiveness, rather large Destructiveness and Defensiveness, moderate Cautiousness and Acquisitiveness, with small Continuitiveness, and a good intellect. His head is long, rather high, and comparatively narrow, though not remarkably so. His temperament: 7 parts mental, 6 sanguine, 6 muscular, 5 nutritive—which is favorable for industry. He has had a good education, is unprovided for, and must depend on his own resources for success in life, which ought to stimulate him to diligence and perseverance. In addition to this, there are the natural incentives of pride and ambition arising from large Self-Esteem and Approbativeness, and also the influence of example set him by very industrious, persevering parents. He is intelligent, kind, firm, self-reliant, manifests remarkable fortitude, has considerable power of resist-

ance, may be gently led, but cannot be forcibly driven; has ambitious aspirations, and can work well when he is at work; but he is wofully deficient in perseverance, and is a habitual procrastinator, which he acknowledges to be the bane of his life.

He determines courses of study, and to follow certain avocations; commences hopefully, and continues energetically for a while, and usually makes good progress; but his energy wanes, his Firmness yields to other inducements, in which he indulges until something else allures him to another abortive attempt. What is the constitutional cause of the want of perseverance of Mr. D. P——? Certainly not deficient Firmness, for it is large. To what, then, must it be attributed? The following reasons may be assigned:—his organ of Continuitiveness is small, and he is deficient in Cautiousness, and consequently in forethought too, and Acquisitiveness is not large enough to make him put forth continuous efforts to acquire; while Hope being large is ever buoyant; which faculty, being combined with large Self-Esteem, causes him to rely upon his ability to take advantage of transpiring events to earn a livelihood; hence, he will not feel much anxiety for the future.

Large Firmness gives an upright gait, and a firm positive tone to the voice, and when predominant produces stubbornness. When very active it causes the body to draw itself up to the fullest extent, the chin to incline slightly towards the throat, the lips to compress, the muscles of the face to become elongated and stiff, the arms to fold tightly over the chest; the whole figure being symbolical of determination and resistance.

PRINCE BISMARCK.

This portrait is drawn rather less than one-sixth the natural size, whereas most of the others are drawn at one-fifth. It therefore appears comparatively small. The head, however, is large, and indicates a powerful and well-balanced intellect, an unbending will, great self-reliance, self-restraint, and strategic skill. The intellectual organs generally are large, so are Destructiveness and Secretiveness, and Firmness is very large.

The effect of large, predominant Firmness on character is forcibly portrayed in children. They become wilful and intractable when the gratification of their desires and inclinations is opposed, and frequently neither threats nor coaxing will turn the little creatures from the course they determine to pursue, or from any project so long as the stubborn fit lasts. This organ is exceedingly large in Millar, the Stirling murderer (fig. 47), and he was a most resolute character. It is large in figs. 37, 42, 46, and 48, small in fig. 43, and moderate in fig. 36.

16. Conscientiousness.

The faculty of Conscientiousness originates a love of justice and truth, and an inclination to do what is right, perform our duty, discharge our obligations, and obey the laws; but it does not determine what is just or what is unjust, although it disposes the intellect to sift evidence and form impartial and correct conclusions, and to abide by the results. It exercises a vigilant supervision over the mental deliberations, and disapproves of every selfish emotion, unjust and untruthful thought. It causes legislators to make laws for the good of the community alone, and judges to administer them impartially. When energetic it becomes the prime regulator of our actions, and makes us scrupulously exact. It keeps the mind open to conviction. In cases where self is interested in the decisions of the judgment, this faculty ever holds before the understanding the question—What is right? When it is temporarily overruled by the vigorous excitement of one or more of the selfish pro-

pensities, and the person is led to act wrongly, it becomes disagreeably affected, and produces remorse. When it regains its sway, it prompts to apologies and restitution. Hence people of certain organizations are often sinning and repenting, and lay themselves open to the charge of hypocrisy, while they may be perfectly sincere. This, to a sensitive mind, is a severe punishment for transgression. Self-condemnation frequently springs from the too great activity of this faculty without sufficient cause. I have on several occasions been consulted in cases of religious monomania, which resulted from morbid excitement of Conscientiousness.

Injustice, unfair dealing, theft, and dishonesty in all its multifarious phases—slander, backbiting, and so forth—indicate a deficiency of this organ.

Conscientiousness is situated between Cautiousness and Firmness. Its size is in proportion to the height and breadth of the head at this part, and the length of the parietal bones. It is large in fig. 33, and small in fig. 40.

Fig. 49 is an engraving of the backheads of two gentlemen, one-fifth the natural size; one being represented by a plain, and the other by a dotted line. Their necks and ears are uniform, but the configuration of their heads is different, and so is their dispositions. I am intimately acquainted with them, and know their characteristics well.

The dotted line commences to diverge at the ears, and continues to do so over the organs of Destructiveness and Secretiveness, then it converges rapidly for a short distance, and afterwards slightly up to the crown. The backhead of the gentleman represented by the plain line is broadest at

the upper half, and he is very cautious and circumspect, scrupulously just, and very firm. The gentleman whose backhead is represented by the dotted line is Mr. D. P——, the person described under the head of Firmness. His

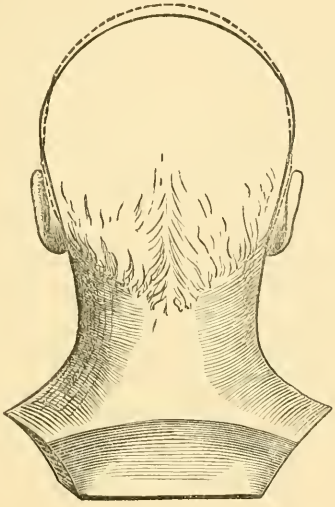


Fig. 49.

backhead, it will be seen, is widest at the lower half, and he is more irascible and secretive than the other gentleman, not so exact in matters of equity, and wanting in cautiousness and forethought.

17. Hope.

This faculty is the basis of Hope in general. It gives rise

to hopeful anticipations, which yield present enjoyment by the prospect of future acquirements in proportion to its comparative energy and vivacity. When strong, and the organ of Cautiousness small, it tends to make its possessor credulous, build castles in the air, and look for the realization of what the other faculties desire without any intelligent reason. It should therefore be kept under the government of an enlightened intellect and a sound judgment, inasmuch as without such guidance it may, by acting with too great vigour, lead to painful shocks of disappointment, while its weakness and inactivity mar the happiness of life. For what is this world without hope? A cheerless wilderness of apprehension and gloom—a dark and boundless gulf of unmitigated despair; but hope disperses the clouds of despair and the mists of doubt, and lightens the dark valley, sending its cheering influence over the horizon, and enriching the prospect with joyous expectancy. "Hope," says Lord Bacon, "is the most beneficial of all the affections; and doth much to the prolongation of life, if it be not too often frustrated; but entertaineth the fancy with an expectation of good; therefore they which fix and propound to themselves some end, as the mark and scope of their life, and continually and by degrees go forward in the same, are for the most part long-lived."

A person having large Hope and Benevolence and small Cautiousness may unintentionally be led to make promises which he cannot perform, or would not be justified in performing if he could. With large Acquisitiveness and Self-Esteem, and moderate Cautiousness, it may lead to extravagant speculation and gambling. When directed to religion,

and resting on the firm faith of the Christian, it is a marvellous power. It is under such circumstances that Hope develops its charms to perfection, and makes happiness complete in this life. An individual having small Hope labors under a misfortune of no ordinary kind, but should small Firmness and large Cautiousness and Gravity be combined with it, his state would be sad indeed. Doubt, doubt, doubt, with perhaps occasional cheery fits, only again to subside into doubt, or to be overshadowed with gloom and despondency, would be his unhappy lot. This is an extreme case, but no fanciful picture. Such miserable wretches are now and then to be met with to whom life is a burden; and many—it is to be feared, very many—crushed by the unbearable misery of despair, have suicidally ended their forlorn state. There is a vast variety of intermediate conditions between habitual hopefulness and doubt, all of which prove demonstratively the existence of the primitive faculty of Hope, and its dependence on organic conditions.

This organ is situated at each side of Veneration, in front of Conscientiousness.

18. Marvellousness, or Love of Change.

There are people who, on beholding extraordinary scenes and wonderful phenomena, feel a thrilling sensation of delight, causing them to gaze with fascinating amazement. Anything unusual astonishes them. If they hear of a remarkable adventure, or meet with an individual unexpectedly, they are astonished. Should any novel occurrence take place, or any person manifest some trait for which they

are unprepared, they give expression to their feelings by an ejaculation of surprise. Their general manner and conversation give unmistakeable signs of acute sensitiveness to the marvellous, and a proneness to gratify the feeling by poring over the writings of authors who graphically depict it. They greedily devour stories of ghosts, witchcraft, miracles, and the like. They also have a tendency to give credence to testimony without due investigation, and the more remarkable the narrative, the greater is their tendency to believe it. They delight in changes, in the new, the novel, in the romantic and sensational. Such individuals have the cerebral part in which the organ of Marvellousness is located largely developed.

Another class of people are met with in our intercourse with society who are of an opposite type, both in conformation and character. They are a plain, matter-of-fact, stereotyped class. They are in no haste to believe. Their judgments only yield to the potent influence of irresistible proof. Even spiritual visitants must be put through the crucial test of sense—handled like cattle by dealers. Occult forces that elude the grasp—refuse to be bottled, weighed, and analyzed—and whose origin, destination, and use cannot be accounted for by known laws or preconceived theories, are unceremoniously struck off the roll of entities. Nothing astonishes them. They have made up their minds that there is nothing new under the sun, and look upon occurrences and phenomena of the most unusual kind as matters of course. Giants, dwarfs, and monsters only beget a casual remark as to the freaks of Nature. Earthquakes, volcanic eruptions, convulsions of sea and air, may command their

attention, but only as fitting subjects for scientific investigation, or food for thought. They feel no emotional thrill in contemplating the marvellous. Pleasure they may feel, but it is circumscribed within the confines of the intellect. No fear of their leaving the beaten track of probability and fact to ramble in the bye-ways of romance and fiction. This class are sparely endowed with the organ of Marvellousness.

In studying the preceding characteristics, and the accompanying cerebral conformations, we are forced to admit the existence of a special faculty and its attendant organ. What then is its legitimate function? Dr. Spurzheim was of opinion that this feeling is principally manifested by a belief in miraculous and supernatural circumstances, and he designated it Supernaturality; but, subsequently, considering that it may be applied both to natural and supernatural things, he named it *Marvellousness*. He says, "This name I prefer to that of Wonder adopted by Mr. Combe, because, according to Dr. Johnson's *Dictionary*, Wonder is applicable only to surprise excited by natural objects, whilst Marvellousness embraces both kinds of astonishment caused by natural and supernatural circumstances." Dr. Spurzheim had evidently given his attention more to the manifestations resulting from great size and vigour of the organ of this faculty than its normal action and moderate size, and named it accordingly. In doing so, however, he does not appear to me to have done himself justice. It is almost inconceivable that he could have entertained the idea of a belief of "miraculous and supernatural circumstances and the expression of astonishment" being the primitive functions of the power under

consideration. These, however, are undoubtedly modes of its manifestation.

An analysis of the manifestations of this power starts in my mind the question—Is this a single and indivisible power, or are there two powers? I frankly confess my inability to answer the question satisfactorily. It is difficult to trace a sufficiently close relationship between "the love of the marvellous, the novel, the new, and of change; *and a tendency to credulity*," so as to associate them in the mind as having the same origin. Love of Change appears to spring from a different emotion from that which induces credence, and is essential to faith.

Change is constantly taking place. Nothing is fixed. Nothing remains unaltered for a second of time. From the cradle to the grave we are ever changing, and every part of the visible creation is undergoing the same process. Infancy, childhood, boyhood, manhood; parent and grandparent; blooming beauty, agility, grey-hairs, and stiffened joints; day, night; spring, summer, autumn, winter; Life, Death! What changes! And what wisdom! What love and beneficence displayed in our adaptation to them! From the first breath to the last we exhale, we are schooled in the facts of change, in order to prepare us for the great and momentous period when we shall pass from the mortal to the immortal—leaving our sorrowing friends in this life to join those who have gone before. Without adaptation to change, we could not exist in this material universe. The nervous system would be incapable of sustaining the shocks which constant changes all round would necessarily produce.

Faith is equally needful for our existence as the adaptation

to change. The whole civilized world is bound together by faith, like the particles of matter by the force of cohesion. Over-credulousness, we have seen, results from the exaltation of Marvellousness, or possibly from a special property having its seat in a portion of the cerebral mass wherein the organ of Marvellousness is located, its primitive function being Faith. Whether this be so or not time must reveal.

My opinion with regard to Marvellousness is, that its primitive faculty is that which adapts us to change, and that it would be more properly designated *Love of Change.*

It may be as well to anticipate an objection to this appellation. I may be reminded of having attributed changeableness to deficient Continuitiveness. Changeableness, however, is the negative effect of that faculty, just as cowardice is the negative of small Defensiveness. Continuitiveness gives an inclination to continuous effort, which, if not checked, would injure the health. Love of Change, on the contrary, induces a desire for something novel in condition or circumstances, which is necessary for both body and mind. See the benefits of change as shown in the experiences of my friend (p. 49).

Mr. Combe considered the primitive faculty of Marvellousness, or Wonder, as he calls it, to be "love of the new." He says, "It appears to me that the love of the new is the primitive function of the faculty, and that surprise and wonder are the pleasureable emotions which attend its activity, when excited by the presence of unknown objects. The whole of the sublunary creation is one vast scene of destruction and renovation. Destructiveness places man in harmony with the first series of these changes, and the faculty

now under consideration with the second."—*System*, 5th ed. revised, p. 455.

Mr. Combe and I appear to have arrived at similar conclusions with regard to the primitive faculty under review, the only difference being in the name, which is a matter of small importance, so long as the meaning attached to it is understood; although it is desirable to use such precise terms in naming the faculties as most appropriately indicate their functions.

I prefer the designation Love of Change, because I think it is more appropriate and comprehensive than "Love of the New." Newness does not constitute change. A new thing made from an old pattern would represent likeness, not change; and an old thing may be changed in shape. Change embraces the new, and the novel too; and novelty contains the elements which excite surprise and wonder. Again, these emotions may be aroused by death, which is not new. This faculty not only adapts us for change, and imparts a fondness for it, but prompts to the production of changes.

When highly exalted the ordinary course of events fails to satisfy its desire for change. The apparent sameness lacks the required charm; ungratifying monotony pervades the accustomed landscape; and ardent longing for satisfaction disposes to travel and adventure. Combined with a vigorous intellect, this organ tends to develop a lively imagination, to draw on the fancy, and startle with wonderful transformations, mysterious personages, sensational stories, and the romantic and miraculous. With large organs of Causality, Individuality, Size and Weight, it stimulates to useful inven-

EMANUEL SWEDENBORG.

The forehead of Swedenborg is broad and lofty and shows signs of a comprehensive intellect, but the physiognomy unmistakeably betokens a predominance of the sentiment of Marvellousness, and its organ is excessively large.

SIR JAMES Y. SIMPSON.

The expression of Sir James's countenance reflects the feelings of humorousness, marvellousness, and self-complacency; and the phrenological contour and physiognomy harmonize. The organs of Marvellousness or Love of Change, Humorousness, Self-Esteem, and Size are large. Language is rather large.

tion. With Approbativeness, Ideality, and moderate Intellect, it gives rise to love of fashion. "Changes are lightsome," says the adage, and experience proves them useful.

The organ of Marvellousness or Love of Change is located in the upper lateral portion of the frontal bone, between the organs of Imitation and Ideality, and it gives squareness to the top of the forehead. John Bunyan had it very large, and wrote the "Pilgrim's Progress" under its influence. Swedenborg (portrait 16) also possessed a large development of it, and manifested it in great vigour in his voluminous writings. It was rather large in Sir James Y. Simpson, the discoverer of chloroform (portrait 17). It is large in fig. 51.

I consider it unnecessary to give illustrations of small development of this organ: cases of the kind are so numerous.

19. Love of the Picturesque, or Ideality.

The organ of Love of the Picturesque is situated alongside Love of Change, extending in an inferior and lateral direction. It adapts us to the picturesque in nature, and desires adornment, feels a sense of dissatisfaction with plainness, and exerts an influence in the councils of the mind for the attainment of its desires, proportionate to its power. When large and dominantly vigorous, it succeeds in directing the attention to what it feels interested in, and disposes the intellect to the production of picturesqueness; and thus far stimulates to the development of art, refinement, and love of beauty.

Dr. Gall found it large in all great poets, and named it the "Talent for Poetry." He was of opinion that, whatever

talents and acquirements distinguished a poet in the choice of his subjects, these do not constitute poetical genius; that to make a poet requires a particular faculty independent of all others; and, moreover, that there never has existed, nor ever will exist, a poet in whom the cerebral parts referred to are not very greatly developed. But what constitutes the function of this organ when it has only acquired an ordinary degree of development, he says, "I dare not to decide." His views are here lucidly and emphatically expressed. Finding a correspondence between a large development of this organ and poetic genius, he concluded it to be the organ of poetry, and named it accordingly. I object to this deduction. It would be quite as rational to infer, that the function of the organ of Acquisitiveness is theft, because it is generally large in thieves, and that the function of Destructiveness is murder, because its organ is generally of large size in murderers.

Dr. Gall having discovered a connection between large development of the organs of the Intellectual Faculties and their primitive functions, pursued the same method of induction in determining the uses of the Affective Faculties. This was an error. For the predominant energy of the Affective Faculties gives rise to modes of manifestation directly at variance with their primitive use. For example, the use of Acquisitiveness is legitimate gain—theft is its abuse; the desire in both cases being to acquire. In like manner, the faculty of Form appreciates symmetry of parts; but while the proper use of the latter may be correctly inferred from a large development of its organ, large size in the former is an indication of a tendency to abuse. It is not the intellect

which disposes to evil, but the affections. Hence the primitive functions of the Affective Faculties should be estimated by a different standard to what may be advantageously used in an analysis of the Intellectual Faculties. We must go a good way down the scale of quantitive emotion, and in the present case endeavour to ascertain what is the function of the faculty when its organ has only attained an ordinary state of development. But, before doing so, it is advisable to examine the subject by the light cast upon it by Dr. Spurzheim and Mr. Combe.

Dr. Spurzheim's observations were in keeping with those of Dr. Gall. He also observed the portion of brain under consideration to be large in all great poets, but did not think there existed a single organ of poetry in the widest acceptation of the term. "We must therefore," he says, "determine the essential of every kind of poetry, which I am inclined to attribute to this organ as its special faculty, whilst the species of poetry produced depends on the combination of this with the other faculties of the individual poet. I think that the poetic turn of mind results from a peculiar mode of feeling, a certain manner of viewing the world and events. A plain, unadorned description of things as they are cannot be called poetry; exaltation, imagination, inspiration, rapture, and warmth in the expressions are requisite to constitute compositions worthy of the name; all is represented in exaggerated terms, in a state of perfection such as it ought to be. Poets picture forth a fictitious and imaginary world. Thus I admit a sentiment which vivifies the other faculties, and impresses a peculiar character called poetical or ideal. It may be combined with both the Affec-

tive and Intellectual Faculties, and aspires to imaginary perfection or completion in every thing. It produces the sublime in the arts, makes enthusiasts of us in friendship, virtue, painting, music, or any other direction which our natural feelings or talents take." "I call its organ that of Ideality."

This exposition is uncommonly vague and apparently contradictory. How it escaped the keenly critical eye of the author is surprising. If all in poetry, as he says, "is represented in exaggerated terms," how can the representation be "in a state of perfection such as it ought to be?" Exaggeration is inconsistent with perfection; and such as *ought not* to be. A similar idea is expressed in the next sentence—"Ideality aspires to imaginary perfection or *completion in every thing*." But *imaginary* perfection may be very imperfect and incomplete. Again, it is said to make "enthusiasts of us in any direction which our natural feelings and talents take." Now, it unfortunately happens that the natural feelings of numbers of persons take a very wrong direction; such as to other people's pockets and safes, with thievish intent, for the purpose of appropriating their contents; and, according to Dr. Spurzheim, enthusiasts in this direction may be made by virtue of a large organ of Ideality. For, if this very same organ aspires to perfection or completion in every thing, it is clear that, in performing this double office in the cases supposed, it will aspire to perfection in theft, or to the perpetration of any other unlawful and wicked act to which the predominating feelings may lead.

Of Dr. Spurzheim's analysis Mr. Combe speaks in high terms of commendation. He remarks, "We owe to Dr.

Spurzheim the correct analysis of this faculty, and the elegant and appropriate name by which it is designated," and he adds, "This faculty produces a desire for exquisiteness and perfection." "It desires to endow with splendid excellence every object presented to the mind." "It stimulates the faculties which form ideas, to create scenes in which every object is invested with the perfection which it delights to contemplate." "It gives a particular tinge to all the faculties, and makes them in every thing aspire to exquisiteness." "Where ideality exists to a considerable extent, there is an innate desire for the beautiful. It is one element in correct taste."—*System of Phrenology*, 5th ed. revised.

Dr. Spurzheim and Mr. Combe, especially the latter, give to this faculty a far too extended sphere of action. Spurzheim admits that it vivifies the other faculties, and "impresses a peculiar character, called poetical or ideal, and aspires to imaginary perfection." Ideality undoubtedly does occasionally vivify other faculties when dominantly large, but it is as frequently, if not more frequently, aroused to activity by the vigorous impulse of other faculties. Love and Ambition were the original vivifiers of the Ayrshire Ploughman's poetic genius. Combe advances a step farther, drops the adjective, and says, "This faculty produces a desire for exquisiteness or perfection;" but not only so, "it gives a particular tinge to all the other faculties, and makes them in every thing aspire to exquisiteness;" and, "where this organ is large, there is an innate desire for the beautiful." If this were the case, poets ought to be the most perfect of men, but we know they are not; and, moreover, we know

that perfection of thought, sentiment, and disposition is not proportionate to the size of this organ. A large development of it is often seen in low and morally debased people.

To ascribe to one faculty the power of producing aspirations after perfection, and an innate desire for the beautiful, is a stretch of the fancy ; for, to think and feel perfectly requires a perfect mental organization in all its parts, and to clearly perceive beauty a plurality of energetic powers is needed.

An individual having small organs of Form and Color cannot perceive symmetry of parts and harmony of hues, whatever may be the size of Ideality. Neither will he be able to appreciate neatness of arrangement with a deficiently developed organ of Order. Yet these are essential conditions of beauty.

The organs of Ideality and Sublimity were treated by Drs. Gall and Spurzheim, and by Mr. Combe, as one organ, except that Sublimity is mentioned by the latter in a casual manner. These organs, however, are distinct in function, and produce opposite tastes, although both inspire poetic conceptions. Ideality is pleased with serenitude, Sublimity with tempest. The former, when large, causes its possessor to dwell with intense pleasure on an unbroken landscape, and the picturesque beauties of its trees, shrubs, and placid winding rivers. But turbulent streams, bounding cascades, rugged cliffs, impassable gorges, and Nature's upheavings, thrill those with delightful emotions in whom Sublimity dominates. It is almost superfluous to add that the latter phases of Nature are the opposite of beautiful. These facts appear to have been overlooked by Dr. Spurzheim and Mr.

Combe in their expositions of the functions of the cerebral parts under examination.

The idea intended to be conveyed by Mr. Combe in the sentence, "This faculty gives a particular tinge to all the other faculties," is, I apprehend, that a dominant effect is produced by a very large and vigorous organ over weaker organs in directing the attention to what it feels most interested in, and thus giving a particular bent to the mind.

The analysis of Dr. Spurzheim, as amplified by Mr. Combe, has been adopted by almost every subsequent author. I have just consulted ten of them, and all appear to have drank at the same fountain. I cannot follow their example, for reasons already advanced, and for those which follow.

I believe this faculty is essential to poetry, or rather to a particular kind of poetry, but that it does not solely originate it, and cannot be correctly designated the "talent for Poetry." Yet I do not think the term Ideality is more appropriate, inasmuch as all the Intellectual Faculties form ideas. Furthermore, our faculties are adapted to the *realities* of Nature, not to the *ideal*, hence we must seek for some tangible existence to which this faculty is related before deciding on its primitive functions.

In discussing the specialities of the faculty of Love of Change, it was shown that it places us in relation to, and gives a desire for change. Being, however, a blind instinct, it does not determine the kind of changes that are best adapted to our wants, nor those which are in harmony with order of arrangement and beauty of design. Certain combinations of things make very ugly subjects, yet they may

be such as are calculated to satisfy the most ardent longing for change. If, therefore, we were not endowed with powers giving us a love of refinement, beauty, and the cultivation of art, inelegance and deformity in all the misshapen loathsomeness which a disordered fancy could design would find myriads of patrons; and, instead of galleries of art, there would be exhibitions of incongruity and monstrosities. But, happily, such a state of things is inadmissable in the divine arrangement. We are furnished with powers, whose combined functions produce a love of beauty, and a desire for variety, and which for their own gratification dispose us to produce changes in harmony therewith.

Love of the Picturesque is one essential element in beauty, which I consider to be the primitive function of the faculty named Ideality. It adapts us to picturesqueness and serenitude, and, when its organ is large, it induces a disposition to contemplate and pourtray these states; but whether in poetic effusions, in delineations with the pencil, brush, mallet and chisel, or in music and song, depends on the particular intellectual faculties with which it acts in combination. The organs of Form, Color, Tune, and Time readily co-operate with it for their own gratification—the most vigorous determining the kind of art to which the individual should specially devote himself.

The Intellect determines the department of art in which an individual ought to engage, and the Affective Faculties the choice of subjects. If Benevolence is the largest organ, the practice of philanthropy will be enforced and tyranny decried. If Amativeness be most largely developed, Cupid will form a subject matter of delineation. If Combativeness

be the disposing propensity, then chivalry will find an echo in this sentiment.

There cannot be a doubt in the minds of impartial and experienced observers, that there is a connection between a large development of the organ of Ideality and a taste for poetic composition. The question to be decided, however, is not whether this faculty originates a taste for poetry, but whether the composition of poetry is its fundamental function. I think it is not. The traits of an imaginative poet mentioned by Spurzheim, are attributable to predominance of the organs of Sublimity and Love of Change more than to Ideality. But imagination and exaggeration are not characteristic traits of poets in general; therefore, if the fundamental function of this faculty were the composition of poetry, Ideality would be an inappropriate appellation.

I am convinced, by careful observation and lengthened experience, that the faculty of Ideality, which I name Love of the Picturesque, does not give much proneness to exaggeration. It delights more in sober verities than in fictitious imaginary creations. It is related to, and takes pleasure in, the picturesque; and in proportion to its relative strength with the other disposing faculties, it gives an inclination to this department of art; and so far it contributes to refinement and love of beauty. The poet is a word-picture artist, and like other artists he chooses for delineation the parts of nature most in harmony with his taste and gratifying to his strongest desires. His aim, as a rule, is not so much to exaggerate his subject as to give picturesqueness to it by a harmonious arrangement of parts, or to describe existing beauties. He sees beauty where other people observe nothing

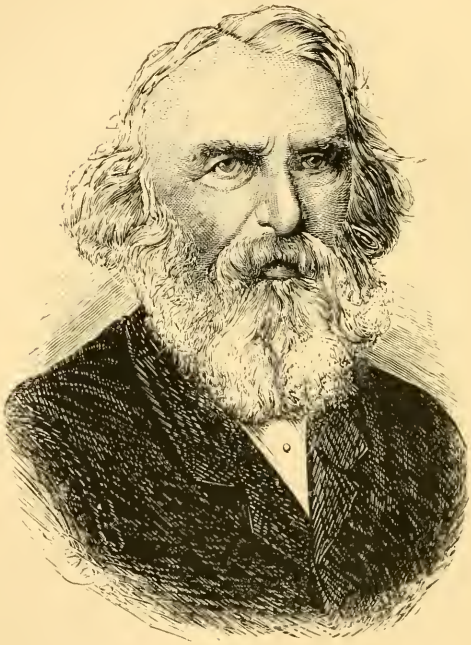
but unattractive plainness He perceives that Nature, in her meanest parts, teems with objects of admiration, and when dressed in humblest attire is richly adorned, presenting fitting themes for the muse and the lyre. View poetry in whatever aspect we may, picturesqueness is manifestly its primary element, and the more vividly the subject is delineated, the more certainly does it beget a ready and emphatic response in the reader.

Dr. Gall remarks, "whenever I inquire of a poet to what faculty he attributes his talent, he answers, 'the faculty of representing by images, sentiments, ideas and events, and of offering an interesting picture of them.'"

Love of the Picturesque prefers adornment to plainness, and serenitude to tempest. Where it is large, and the organ of Sublimity is small, the tendency of the individual is to take pleasure in picturing forth serenitude.

Picturesqueness and Serenitude are evidently diverse states or conditions which presuppose distinct faculties being adapted to them, each having its own organ. Further observation and minuter analysis may eventually divide into two organs that portion of the cerebrum at present ascribed to the organ of Love of the Picturesque, but until that degree of progress be attained, we must continue to treat these emotions as if they both wrought through one organ.

I recently examined the head of an eminent artist, and finding the organ of Love of the Picturesque tolerably developed, and that of Sublimity only of moderate size, I remarked to him, "you will be much fonder of the serene than of tumult, of observing the elements of nature calm and gentle, than wild and furious; will feel a more exquisite



HENRY W. LONGFELLOW, Poet.

This likeness graphically portrays good and active powers of observation, and that they have been accustomed to exercise. The organs of Color, Weight, Size, and Language are rather large. Locality and Sublimity are both large. It is the latter sentiment that feels the inspiration of Poesy, and nerves her pinions to flight, to survey the grandeur and vastness of God's works.

thrill of pleasing emotion in contemplating the soft fanning of the zephyr, than the rude vehemence of the hurricane. The sea at rest will attract your gaze, but when lashed into foam and fury it will exert a repelling force; and serenitude will furnish subject matter for your delineations." He replied, "you are perfectly right," and gave an interesting description of the difference of the emotions he experienced in viewing, and also in meditating on, the aspects of nature in a calm and in a storm, quite in keeping with the inference just drawn. And the experience of every person, whose head I have examined and found of like conformation, has been similar in kind.

19B. SUBLIMITY.

The organ of Sublimity is situated immediately behind, and parallel with, that of Love of the Picturesque. A large development of it gives breadth to this part of the head. This faculty imparts an elevated tone of feeling, and a desire for what is above commonplace. It adapts us to the rugged in nature, and the convulsive throes of troubled elements—mountains and ravines, cataracts, volcanic eruptions, and storms; the vast, stupendous, and illimitable. Had it not been for this adaptation, we should have been rendered miserable by such frowning aspects; but the Creator has rendered them subservient to our enjoyment, especially to those who have the organ very large. It inspires with great conceptions, nerves the pinions of the poet to ascend the lofty heights of sublime grandeur, gives a liking for magnificent descriptions, and a tendency to

grandiloquence and exaggeration. It gives merchants a desire to deal largely, and with large Hope, to enter into great speculations. Combined with small Conscientiousness and Cautiousness, and large Acquisitiveness, it may prompt to reckless dealing. Whatever position of life a man may hold who has this organ large and dominant, he desires greatness, and will be apt to express himself in high-sounding phrases. It is large in Longfellow (portrait 18).

20. Imitation.

The organ of Imitation is situated between Benevolence and Love of Change, and the size of it may be found by the same rules as these organs. Its function is to imitate the productions of others in science, art, manufacture, mechanism, architecture, politics, and literature. It is necessary in learning to talk, and in copying the habits and manners of society, peoples, and nations. It imitates what is useless, foolish, and bad, as well as what is useful, wise, noble, and good. It simply copies without determining the nature and value of what it copies. This is the duty of other faculties, and of our monitors.

A child imitates the voice, gestures, and habits of its parents, guardians, and teachers, and of the people with whom it mingles. This faculty is conservative in tendency. It preserves institutions, ceremonials, and forms of things from the ravages of time and the innovations of change by constant reproduction.

What exists, has existed, and is transpiring, Imitation copies and hands down to posterity; if by doing so it does

not over-disagreeably affect other faculties. If Tune and the vocal organs be largely developed, pleasure will be felt in imitating sounds, voices, and musical intonations. This combination gives rise to a taste for ventriloquism. Co-operating with Eventuality, there will be a tendency to mimic the motions of people and things; with Love of the Picturesque, Form, and Color, the style and productions of artists will probably be copied. A large development of the organ is essential to actors. But to faithfully represent any sentiment or passion, or the characteristic traits of a person, it is absolutely requisite for the actor to have a large endowment of the same organs as the individual whose manifestations are the subject of delineation. The celebrated comedians Charles Matthews and J. L. Toole have large Imitation, so has Miss Bateman (portrait 20); it is also large in fig. 51. The Chinese as a nation have a world-wide fame for their powers of imitation, and the organ is very large in them.

21. Humorousness, or Wit.

This organ is situated at the upper lateral portion of the forehead, betwixt Love of the Picturesque and Causality. Its fundamental use has given rise to much speculation and disputation, and is still involved in uncertainty. People in whom it is large and dominant are prone to view things in a ludicrous light, and to represent them in droll combinations. The character of its manifestations, however, varies in accordance with the number, vivacity, and power of the faculties acting in concert with it.

The greater the number of equally vigorous faculties that combine for a common purpose, the more complex are the manifestations, and the more difficult is it to analyze them, and to assign to each its due share of influence. If the co-operating faculties are not equal in power, susceptibility, and education, the traits of the strongest will stand out with the greatest prominence; or if the stimulating cause more directly affects one than the rest, the mental quality and influence of this one will be most prominent and most easily descried, just as in music a simple air is more quickly perceived than the complex variety of harmony.

Where this organ and Self-Esteem are large, and the Intellect is small, they tend to produce buffoonery; with a good Intellect, quickness of repartee; with large Destructiveness, sharp retorts, satire, and sarcasm; and when small Conscientiousness and Benevolence co-operate with this combination, there is proneness to ridicule, and to administer the caustic extract of reproof in all its unmitigated pungency; but with the two latter organs large, the manifestations are tempered with justice and mercy—the pill of satire being coated with some delectable compound, and rebukes given while tickling the fancy.

The result of my investigations inclines me to consider the function of this organ as intellectual, and that its primitive use is the perception of the relations of things, ideas, and words. Individuals who are largely endowed with it display acuteness in perceiving incongruity, and, if well supported by Language, aptness in taking advantage of favorable opportunities for exposing its ludicrousness. This aptitude clearly indicates quick and comprehensive perception of

REV. DR. GUTHRIE.

The entire physiognomy represented in this portrait denotes the original to be blessed with the power and the will of making the best of both this world and that which is to come. He does not cast a lugubrious shade over the circle in which he moves, but prudently adapts himself to circumstances. He can equally touch the affections, kindle a fire of holy devotion, and excite the risible muscles. This is a splendid type of head. The intellectual faculties, Benevolence, and Humorousness are large.

relations. When acting in harmony with certain other faculties, Humorousness takes pleasure in caricaturing the conceits, whimsicalities, oddities, follies, ignorance and errors of people. Mr. Charles Dickens had a good endowment of this organ, and its influence is a prominent feature in his writings. Acting under the influence of Humorousness, a vigorous and cultivated intellect, and active moral powers, he preached sermons of truth and goodness by caricaturing evil, injustice, and double-dealing.

Dr. Gall named this organ Wit, because he found it large in the heads of persons famed for that quality of mind; and he classed it in the intellectual group. Dr. Spurzheim inferred from the same series of facts that Wit originates from a compound operation of the mind, and that the faculty in question is a sentiment which disposes men to view everything in a gay and joyful manner. He first followed Gall's designation, but subsequently named it Mirthfulness. Mr. Combe approved of Spurzheim's exposition, but adopted the appellation Wit.

There is an interesting summary of the opinions of phrenologists on the function of this organ, and the arguments adduced in support of them, in the eleventh volume of the *Phrenological Journal*, pp. 381–91, by the Editor. A perusal of it will fully repay the student.

Dr. Vimont followed Dr. Gall's classification, but inclined to think, with Mons. Schwartz of Stockholm, that its function is the consideration of objects in their relation of means to an end, or that it enables one in thought to arrange and combine circumstances as leading to one aim. Schwartz suggested the Faculty of Combination as the most appropriate

designation. Mr. Scott contends that the function of this organ is to perceive difference; Mr. H. Watson, that it discriminates the intrinsic quality, the nature, and reality of things. Mr. Sidney Smith, in his *Principles of Phrenology*, argues that this faculty is neither the sentiment of mirth nor the intellectual power of wit; and he reads Dr. Spurzheim and Mr. Combe a lecture for careless investigation and erroneous induction. He is favorable to Mr. Watson's opinion, and thinks that one use of the organ is to take classification to pieces.

Amidst the conflict of opinion how shall we arrive at the truth? I answer, by bringing Nature into the witness-box, and putting her through a searching and impartial examination.

Several causes appear to have contributed to this difference of opinion. *First*, inaccuracy of observation and miscalculation of the size of the organ in question. To avoid similar mistakes, the following facts ought to be studied. When the organs of Humorousness, Causality, and Comparison are all large, they give great breadth to the upper part of the forehead, but in cases where the two latter organs are small, the former may be large where the breadth of the head is only moderate. In heads of opposite conformation—that is, wherein the relative size of these organs is reversed, there may be considerable breadth, but small Humorousness. The height of the brow should be taken into the calculation also, and the relative size of the intermediate organs of Eventuality, Locality, Time, and Tune; for where the peripheral expansion of these organs is great, and the brow of but moderate height, there will be little depth or thickness of the upper organs.

The size of Humorousness is not according to the absolute breadth of the head at its seat. The best way to find the size of it, is first to find the centre of the point of ossification of the frontal bone, which is also the centre of the organ of Causality, and to estimate the size of the head outward from this point, taking care to make exact allowance for the outer half of Causality.

Second.—Another prolific source of error is careless analysis, confounding manifestations that differ; attributing to one organ the complex results of several, and not calculating the modifying influence of the joint action of organs.

Third.—Not properly distinguishing between the susceptibility to sallies of wit, the creative power, and the aptitude for giving expression to witty conceptions.

Fourth.—Not estimating, and duly allowing for, the power of self-restraint of a witty person, and his disposition to restrain himself from speaking out the witty ideas which may exist in his mind.

Some people are very susceptible to strokes of wit, and richly enjoy its sallies, but have little power to produce it. Some again only enjoy a particular kind or kinds of wit, whilst some kinds are positively distasteful to them, and other kinds are beyond their powers of perception. Similar difference is shown by wits. Some are simple retailers of other people's productions, and the witticisms of another class are little more than the shallow and contemptible efforts of buffoons. Some rise higher in the scale of intellect, but their productions are limited to a perception of the most obvious features of likeness of dissimilar things and the double meaning of words. There is also great difference in

the susceptibility of individuals to enjoy wit, the power to create it, and their aptitude to verbally express witty conceptions. Some may be almost fit to explode with droll and witty ideas, yet be incapable of commanding suitable terms to express them, or may feel an indisposition to do so, though having sufficient language. There are other persons who immediately on conceiving a witty idea give birth to it. They are neither kept back by deficient language, power of restraint, nor indisposition; but like the sportsman on the moor, with gun in hand, ready to bring down the first bird that takes the wing, they are always prepared to display their power on every favorable occasion. And all these classes of persons may possess an equal endowment of the organ of Humorousness,—their difference of thought, feeling, and demeanour arising from inequality of development of other organs.

Having shown that where one or both of the organs of Causality and Comparison are small, Humorousness may be considerably developed without the head being broad at its seat, we need not be surprised at occasionally finding wits with foreheads comparatively narrow at that part. Curran, Sheridan, and Swift are notable examples of wits having this conformation, and they have caused no small amount of embarrassment to those phrenologists, who attribute the origin of wit to the organ of Humorousness, and estimate the size of it by breadth alone.

In reviewing these cases, we ought to consider—*first*, whether the comparative narrowness was not caused by small Causality or Comparison, or both, or whether the species of wit for which those individuals were famed arose

principally from these organs; and *second*, whether or not Humorousness played a sufficiently active part in the mental operations to have produced the witty turn of mind by operating harmoniously with, and contributing to, the gratification of Comparison and Causality. The faculty of Humorousness may contribute largely to particular strokes of wit, although the operation of Comparison may appear most prominent in them. No one of recent time has taken higher rank amongst wits than Douglas Jerrold, yet the portraits I have seen of him do not indicate a large development of Humorousness, but that of Comparison appears to have been very large, and he manifested its function in great vigour. His power consisted chiefly in the acute perception of likeness amidst great unlikeness, or the remote resemblance of very dissimilar things, deeds, and words, and in an aptness of laconically and graphically describing it at the most opportune time, so as to adroitly shift the point of argument, and turn the laugh against an opponent; or to throw back the arrows of sarcasm to the wounding of the archer. The following characteristic specimens of Jerrold's wit are culled from the collection of his *Wit and Opinions*, by his son Blanchard:—"Jerrold and some friends were dining in a private room at a tavern. After dinner, the landlord appeared, and having informed the company that the house was partly under repair, and that he was inconvenienced for want of room, requested that a stranger might be allowed to take a chop at a separate table in the apartment. The company assented; and the stranger, a person of commonplace appearance, was introduced. He ate his chop in silence; but having finished his repast, he disposed

himself for those forty winks which make the sweetest sleep of gourmands. But the stranger snored so loudly and inharmoniously, that conversation was disturbed. Some gentlemen of the party now jarred glasses, or shuffled upon the floor, determined to arouse the obnoxious sleeper. Presently the stranger started from his sleep, and to his legs, and shouted to Jerrold, 'I know you, Mr. Jerrold; but you shall not make a butt of me!' 'Then don't bring your hog's head in here,' was the prompt reply." Here likeness is shown to exist in things very unlike, all being wittily compared, and the stranger severely rebuked.

The double meaning of words often afforded Jerrold an opportunity for levelling his shafts of wit. On being told that a recently produced play had been done to order, Jerrold replied, "Ah! and it strikes me it will still be done to a great many orders." Jerrold here criticised the play unfavorably, by comparing the order for the production of it to the orders of *free* admission, which would have to be given to see it performed, in consequence of its lacking attractive merit.

I am personally acquainted with M—— P——, who is remarkable for quickness of repartee and comic wit. Her witticisms consist of ludicrous comparisons and absurd contrasts, which are invariably prefaced with such observations as "that puts me in mind of," or "that is like." Whatever the subject of conversation may be, it is ever and anon reminding her of something she has said, read, heard, or felt, and stimulating the fancy to laughable conceptions of likeness, which are no sooner conceived than expressed. Her aptness impresses all with whom she comes in contact, and

MRS. M. P——.

We have here the gaze of physical effort, rather than mental observant desire, which is accounted for by Mrs. M. P —— being in very bad health and exceedingly weak at the time her photograph was taken. The perceptive faculties are fully developed, and the size of Comparison is very large. See account of its activity, p. 294.

the risible faculties of the most thoughtful and sedate are vulnerable to her extravagant and ludicrous sallies. She is moderately endowed with the organ of Humorousness, but Comparison is very large. It stands out as though a piece had been attached to the centre of the upper portion of the brow in the form of an inverted cone. (See portrait 19).

"A solicitor, with a nose so sharp that it looked like the beak of a bird, threatened to file his bill against a lady, who replied that there was no occasion to *file* his bill, as it was sharp enough without." Here the lady's faculty of Comparison was obviously the most active one engaged in her witty reply. I had marked several examples having a similar origin, but deem it unnecessary to quote more in support of the fact, that wit seems frequently to originate, in most part, from Comparison. I am, however, far from thinking that all wit springs from the same source. On the contrary, examples could be given where no trace of the operation of this faculty is observable. Furthermore, a large organ of Comparison is not in itself an indication of a talent for wit. My friend is a case in point. Comparison is one of his largest and most active mental organs, and he has earned a reputation for analytical acumen. His perception of difference where there appears to most people complete likeness, and of similarity amidst great dissimilarity, is exceedingly acute, notwithstanding I am not aware that he ever made a witty remark at the right time.

We have now arrived at a stage of our investigations when the nature of Wit becomes a proper subject of inquiry. But of all the productions of the mind, wit is the most difficult

to define. If we include in the definition of wit, its conception, delivery, and aim, it will be found to consist in the quick perception of conditions, relations, and incongruity; in detecting likeness in things, qualities, and ideas that are very unlike, or difference amid great similarity; or in attributing to things, dissimilar in their nature, like powers, qualities, and consequences, and in aptly pointing out any of these states that are adapted to the occasion, with clearness, force, precision, and brevity; likewise in adroitly suiting the turn of a word, or the ambiguity of an expression, to the subject, time, and circumstances, so as to attain a specific object. Wit is a weapon of both attack and defence, and may be likened to a pugilistic encounter. The requisites for a successful pugilist are self-possession, strength, agility, a quick, ever watchful eye, readiness to parry a blow, and to forcibly send one home at the first opening. So is it in a combat of words. The requisites are self-possession, quick and comprehensive perception, aptness, ready utterance, and dexterous adaptation for parrying a stroke, and returning the compliment efficiently. A stroke of wit may be serious, comic, sarcastic, satirical, good-humoured, or contemptuous, according to the strength and vivacity of the disposing faculties at the time being.

Shakespeare says, "Brevity is the soul of wit;" Pope, that it is "a quick perception and an easy delivery." It is described by Locke as "lying most in the assemblage of ideas, and putting those together with quickness and variety, wherein can be found any resemblance or congruity, thereby to make up pleasant pictures and agreeable visions in the fancy."

Those definitions of Shakespeare, Pope, and Locke are evidently partial and incomplete. Brevity is, undoubtedly, an essential requisite, but only one. If it be the soul of wit, what constitutes the body? "A quick perception and an easy delivery," answers Pope. Very true; wit must be quickly perceived and readily spoken to be effective. But wit consists of particular kinds of perception. Locke's definition, again, is more comprehensive, still it is defective. Many other conditions besides similarity are observed by wits lying in assemblages of ideas.

Mr. Combe, in a lengthy review of the opinions of Dr. Spurzheim, Mr. Scott, Mr. Watson, and others on the subject of Wit, says, "my own view is, that the organ in question (Humorousness) manifests the sentiment of the ludicrous, and that wit consists of any form of intellectual conception combined with this sentiment."—*System.*

According to this view, no emanation of the mind is witty that is not comic. It may be the embodiment of wisdom, a library of knowledge compressed within the compass of a nutshell, a display of extraordinary intellectual acuteness and fecundity, a manifestation of rare analytical skill. It may indicate remarkable discriminating judgment, readiness of adaptation, and a facility of expression. No matter, unless the manifestation be combined with the ludicrous, it is not witty, although the stale absurdities and effete reproductions of buffoons come within the category of wit because they are ludicrous! Mr. Combe's definition of wit is so obviously erroneous, and so at variance with his general exposition and illustrations of it, as to require no refutation, yet an example or two of wit that are devoid of ludicrous-

ness may not be out of place. The first is given from memory, and may differ from the original, but is suitable for our present purpose. Two young American lawyers being out for a stroll, observing an elderly divine coming towards them, determined to have a joke at his expense. When they met, the limbs of the law commenced conversing with the divine respecting his ministrations, and among other questions, asked if he ever misquoted Scripture in the pulpit, and if in the event of finding he had done so, whether he corrected the error or not? He replied, that inheriting the imperfections of human nature, he did sometimes commit errors of that kind, but when he discovered his mistake, he corrected it at the first opportunity, if it were an important one, but he did not trouble his congregation with unimportant corrections. "For example," he said, "the other Sabbath, in quoting the passage from St. John's Gospel, where it is declared that 'the devil is a liar and the father of it,' I made a mistake, and said 'the devil is a *lawyer*, and the father of them;' but, not thinking this an important error, I allowed it to pass uncorrected!" The crestfallen lawyers, smarting under the rebuke, and placing themselves at each side of the divine, as though about to do with their fists what their brains had failed to accomplish, exclaimed, "Is the fellow a knave or a fool?" "Neither," retorted the wit, "just betwixt the two!" In this case, the shrewd divine, perceiving the intention of the limbs of the law was to entangle him in the meshes of casuistry, severely rebuked them by first casting a doubt on their moral character, and then, by a turn of the kaleidoscope, showing them off as rogues and fools. In doing this, he manifested a per-

ception of conditions that does not come within the cognizance of Causality nor Comparison, but which I attribute to the function of Humorousness.

The next example is of like nature, but the immoral character of the subject of it is more directly pointed out. "A Cornish clergyman, having a dispute concerning several shares in different mines, found it necessary to send for a London limb of the law. The divine soon found that his legal assistant was as great a scoundrel as was ever struck off the rolls. However, as he thought his knowledge might be useful, he showed him his papers to compare with his surveyor's drawings, with the situation of the pits and the underground workings. When on one occasion the professional gentleman was descending a shaft by means of a rope, which he held tight in his hand, he called out to the parson, who stood at the top, "Doctor, as you have not confined your studies to geography, but know all things from the surface to the centre, pray, how far is it from this pit to the infernal regions?" "I cannot ascertain the exact distance," replied the divine, "but let go your hold and you will be there in a minute."

Sidney Smith says, "Causality, Comparison, Eventuality and the organ under consideration, all present turns of wit, each in their own kind happy and admirable and all distinct and peculiar."—*Principles of Phrenology*, p. 174. Whether this view is correct or not, it is supported by no small amount of evidence.

All persons are not witty whose foreheads are wide at the locality of Humorousness, but many are witty whose heads are comparatively narrow at this part. Still the question re-

mains to be settled whether the organ of Humorousness does not sometimes appear less than it really is, and whether, in cases where it seems to play a subordinate part, it does not still act with adequate vigour to give the witty turn? These questions can only be decided by very numerous observations, under greatly varying circumstances, and by comparing correctly estimated development with properly analyzed manifestations. Abundant evidence, however, has been adduced to prove, that wit denotes a compound operation; and that ludicrousness is not essential to wit.

Dr. Spurzheim considers this faculty is the sentiment of gaiety and laughter. He says, "This faculty, it seems to me, was given to man to render him merry, to produce gaiety—feelings not to be confounded with satisfaction or contentment; these are affections of every faculty, whilst gaiety and laughter belong to that which now occupies our attention." This exposition was amongst my first difficulties in the study of Phrenology. I was constantly coming in contact with the most volatile persons having a small organ of Humorousness, who laughed vociferously at the merest trifles; whilst individuals of a grave demeanour were often observed to possess a considerable development of the organ. I endeavoured to reconcile the apparent anomaly by the difference of general development and the combined action of organs; but my efforts were futile until the spring of 1858, when I observed that these ready and vociferous laughers had a particular conformation. Since that time I have made hundreds of observations, in England, Scotland and Wales, and I am now convinced by the irresistible force of evidence, that the exposition of Dr. Spurzheim is incorrect,

—that the organ in question is not the organ of laughter, but that the gaiety and mirthful emotions it displays are the natural effects of the satisfaction experienced by exercise, on the same principle that every other faculty feels pleasure and contentment. I am also further convinced, that there is a cerebral organ of laughter, which acts as a safety-valve and outlet for the overpressing excitement of the brain consequent on powerfully agreeable emotions, which might terminate injuriously if not relieved by the exhausting agitation of laughter. Further information of the discovery, situation, and function of the organ of Gayness or Laughter will be given in due course.

I have stated, and here repeat, that the result of my investigations inclines me to consider the function of the organ of Humorousness as intellectual; but I do not think it necessary to particularize the evidence on which my opinion is founded, or feel myself justified in altering the classification of the organ. In naming it Humorousness, I have followed Mr. Bridges, considering it a better appellation than either Mirthfulness or Wit, although it is not so appropriate as could be desired. I would almost prefer the term Synthesis, or Mons. Schwartz's designation, Faculty of Combination.

I have observed that, as a general rule, people who are largely endowed with this organ manifest greater power of comprehension than those who possess a less endowment of it, all other conditions being equal. They have a clearer perception of kindred relations, and are capable of taking a more profound philosophic view, and of bringing their knowledge to bear on a given subject with greater pre-

cision and effect. The faculty is unquestionably critical in tendency.

The views of Mr. W. H. Watson, as given in an able article in an Inquiry into the Functions of the Organ of Wit, vol. vi. pp. 451-69 of the *Phrenological Journal*, are worthy of attentive study; so also is the exposition of Mr. Combe, in his *System of Phrenology*.

NOTE.—Graveness, No. 36, Gayness, No. 37, and Awe, No. 38, are organs of the Affective Faculties, and as such they are treated of next, though out of numerical order. I was desirous of following Dr. Spurzheim and Mr. Combe in numbering the organs for the sake of uniformity, and placed those at the end of the list. They were discovered in the spring of 1858. At that time I was much interested in phreno-mesmerism, and, fortunately, numbering among my sensitive patients three who were susceptible to phreno-mesmeric manipulation while in the normal state, and who could describe the various feelings produced by touching their organs, I occasionally experimented on them, with the view of testing, by this means, as far as available, the accuracy of the location and functions of the organs. On one occasion G—— S—— placed himself at my disposal for experiment. Without giving him any intimation respecting my object, I placed my finger on the upper margin of the organ of Tune, for the purpose of ascertaining the intermediate boundary of Tune, Love of the Picturesque, and Humorousness, when his head fell forward so as to cause the chin nearly to touch the breast. He looked down with a very grave expression, and commenced moving his left

foot up and down, keeping the heel upon the floor, as though beating time, and appearing altogether a melancholic picture. In answer to questions put, he said "he felt very lonely and sad," and wished his father would come from Australia to him. After further questioning of G—— S—— respecting the nature of his feelings, which only elicited answers of like kind, I went into another room with J—— L——, and on putting the end of my finger on the same part of her head as on that of G—— S——, she manifested identical symptoms, and expressed herself to a precisely similar purport. I next manipulated the head of W—— T——, and questioned him, with like results.

My next object was to determine the boundaries of what I considered, and subsequently proved, to be a new organ, which I name Graveness. Having put a finger on this organ of one of my patients and reproduced the usual symptoms, I moved my finger slowly backward, parallel with the axle of the orbits, immediately below the inferior margin of Love of the Picturesque and Sublimity, when the face of the patient gradually changed from a grave to a gay expression, and he ultimately broke out into a violent fit of laughter. Having satisfied myself by repeated trials on different patients that exciting this organ always produced gaiety and laughter, more or less, according to the sensitiveness of the patients operated upon, and that they described their feelings as being of a like nature, I afterwards, by tracing the finger still farther backward, found that the patients manifested less and less mirthfulness, and by degrees looked awe-struck, as though some awful vision had burst upon their view, by and by becoming alarm-

ingly terrific, when they rushed off in fright to seek a place of refuge.

From that time I began regularly to manipulate these parts on phreno-mesmeric patients, and I have met with several normally sensitive to the touch, and able to describe the emotions raised in their minds,—all being in strict keeping with the first mentioned. But knowing the objections to phreno-mesmerism, and the many conditions necessary to guard against spurious manifestations, I did not deem it proper to designate the cerebral parts in question as organs having functions agreeable with the usual manifestations produced by phreno-mesmerism; but drew the attention of phrenologists to the facts by a note appended to my phrenological chart and register. I wrote to Mr. Bridges on the subject eleven years ago, and personally drew the attention of Messrs. Fowler and Wells to the subject at Newcastle-on-Tyne, shortly after their arrival in England.

My attempt to derive assistance from phrenologists was, however, abortive. Not one, so far as I know, has thought the subject worthy of investigation. But their silence has not caused me to follow their example, but has rather spurred me on to investigate with increased diligence; and having made hundreds of observations on a vast variety of persons, *and compared development with manifestation*, I am rewarded by the most conclusive evidence of having discovered organs,—in addition to the Centre of Energy,—the importance of which is second to none in the list of phrenological discoveries.

36. Graveness.

This organ is situated between Tune, the anterior half of Constructiveness, and Love of the Picturesque, and behind the lower part of Humorousness. I consider the primitive use of it is to produce a becoming gravity of feeling and deportment, and to relieve the mind by a flow of tears when sorely pressed with grief: thus adapting us to the sorrow incidental to our state.

People who have a large development of this organ are, all other conditions being equal, more grave in expression and demeanour than those who have a smaller development of it, and they are sooner affected to tears by mournfulness and pathos. They are soon shocked by a display of light-someness on solemn occasions, and on hearing grave subjects spoken of without due reverence. They desire grave surroundings,—gravity delineated in art, poetry, and music, in the pulpit, on the platform and the stage, and by the press. When this faculty dominates, it pitches the voice on a minor key, calculated to produce lugubrious visions, and seems to induce feelings akin to the Preacher where he says that, "It is better to go to the house of mourning than to the house of feasting," and "sorrow is better than laughter."

It predisposes to attacks of pensiveness and melancholy amidst the happiest influences—friends, domestic comfort, and affluence. *This does not arise from deficient Hope, nor from the reaction consequent on previous excitement of Gayness, or of Humorousness.* The distressing emotions produced by the dominant activity of Graveness are aggravated by the

hopelessness and apprehension arising from a small organ of Hope and large Cautiousness. Under such conditions, life feels a burden.

In the month of November 1866, I was consulted by F—— C—— of Newcastle-on-Tyne, for melancholy. The malady appeared to result, in most part, from a large development and great activity of the organ in question. Her whole physiognomy wore a gloomy aspect. Her husband and mother attributed the cause of her trouble to her having read some newspaper reports of deaths that had occurred in the town from Asiatic cholera. She fancied that she would die of the same disease, and was in consequence very unsettled. She had occasional lightsome bouts, and at such times could partly attend to household and family duties, but, when the fit seized her, she fled from home, husband, and children, in a fruitless search for comfort.

At my request, she went to a photographer and got her likeness taken in two views :—one front, and another with her head resting on her hand as she usually rested it when much troubled with mournful feelings. Portrait 20 is a faithful copy of the front view, and truthfully represents the facial expression commonly indicated by a large organ of Graveness. The widest part of her forehead shows the situation of the organ. I ought to state, that the likeness was taken during one of her lightsome bouts, and of course does not represent the melancholic appearance to that degree which the greater activity of the organ produced. The other view strikingly shows the seat of the cerebral excitement. The organ of Graveness rests on the inside of the fingers between the tips and the second joint. Observe, I did not

MRS. F. C——.

Graveness and gloom are strikingly depicted on this countenance, which accords with the state of mind of the person it represents when she sat for her photograph. The organ of Graveness is extremely large, and Marvellousness is rather large. For description of Mrs. F. C——, see exposition of Graveness.

go to the artist with her, or give any instruction how she was to sit, except as previously stated.

I had afterwards several interviews with this patient, and made mesmeric passes over her head for the purpose of reducing the cerebral excitement, which very considerably relieved her.

Two days after, another woman consulted me for a similar malady that had been induced by a like cause. The organ of Graveness was rather large, and her facial expression was strictly in keeping therewith. I tried similar means to relieve her, as in the first case, and was equally successful.

Pages might be filled with cases showing harmony between the development and manifestation of this organ, proving incontestably its existence, situation, and function to be as described; but to cite more cases would be needlessly occupying space and taxing the reader's attention. Evidence is crowding upon me regarding it in various ways. Recently I had occasion to call upon a lady in D——s. The walls of the reception-room were adorned with several excellent works of art, delineating subjects of a grave character. Resolving to ascertain, if possible, what had determined the lady's artistic choice, I embraced the first opportunity of examining the pictures, and speaking commendatorily of them, especially dwelling on the pathetic beauty of two admirable prints of Landseer's "Chief Mourner," faithful representations in the artist's incomparable style, of a shepherd's dog mourning the loss of his master. This was the key to the lady's mind. I found the form of her head, feeling, expression, tone of voice, deportment, and pictures exactly harmonized,—gravity being the prominent feature.

Her organ of Graveness was large. She remarked that the first view of the prints of the Chief Mourner riveted her to the spot, causing her to gaze upon them with rapt admiration; yet she could hardly refrain weeping.

The sprightliness and buoyancy of children are often marred by the feelings consequent on a large development of this organ. Many such have come under my notice. I have also met with numbers of cases of both juveniles and adults who have had the organ large, and who manifested the function ascribed to it very markedly, notwithstanding they possessed large Hope and only a moderate endowment of Cautiousness.

Dr. Vimont appears to have observed the particular conformation caused by a large development of Graveness; and he adjudged it to be the seat of a special faculty to which he attributed "The sense of the beautiful." He says, "I have been led to the discovery of this faculty in studying carefully the difference which exists between certain persons when they pronounce a judgment on the productions of art or science." He disagreed from Drs. Gall and Spurzheim in ascribing the sense of the beautiful to the poetic talent. "Some great poets," he remarks, "and painters, and some celebrated sculptors, are occasionally deficient in taste in their compositions."

He further remarks, "The seat of the organ of the sentiment of the beautiful in art appears to me to be in the superior, and lateral and external portion of the frontal bone. Gall and Spurzheim confound it with the organ of Constructiveness; especially when they say that sometimes the latter organ is a little higher than usual. I hold it de-

monstrated, that there are two organs in the lateral external part of the frontal bone, the lower, that of Constructiveness, the upper, that of the Sentiment now described, which I consider myself to have discovered."

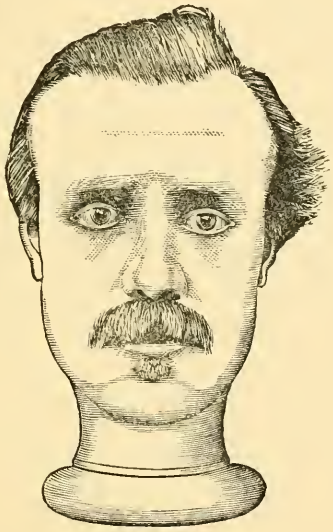


Fig. 50.—(Graveness and Marvellousness large.)

It was not until several years after my discovery of the organ of Graveness that I read the preceding description of Dr. Vimont, although his observations were antecedent to mine. He is wrong in ascribing to this organ the sense of the beautiful in general. It gives a preference only for that species of beauty which harmonizes with gravity. A large endowment of it is indispensable to all artists for suc-

cessful delineation of the emotions, gestures, tone of voice, and general deportment it induces.

Actors, authors, and speakers, that greatly excel in touching pathos, will be found to possess the organ of Graveness in large growth. It is large in Miss Bateman, and the effect of it, intermixed with wonder, is strongly marked in her features (portrait 21). As already noted, it is very large in F—— C—— (portrait 20), rather large in Alex. Miller (portrait 25). Graveness and wonder are strikingly expressed in fig. 51, which accords with the disposition of the individual it represents, and these organs are large. I got his likeness photographed specially for illustration. The skull of Burns shows this organ to have been rather large, and he was often afflicted with the feeling it induces.

37. Gayness.

The organ of Gayness is located immediately behind Graveness. It inclines to cheerfulness, desires lively surroundings, and is the subject of sprightful emotions. It also acts as the safety-valve to an over-be-joyed mind, by discharging the surplus exciting force through the exhaustive energies of laughter, and thereby fortifies the brain against dangerous shocks from unexpected glad-tidings suddenly communicated.

Every rightly balanced and properly exercised faculty of the mind promotes our happiness. Some make us joyous and induce laughter. A miser may feel exhilarated on the receipt of wealth, a merchant by successful speculation, a parent on beholding the beautiful form of her child, or in

contemplating his success in after life. I never see a lovely baby but instantly a smile of pleasure steals over my countenance, and I experience similar thrills of joy in watching the gambols of young animals, while the playfulness, agility, and cunning sometimes displayed by kittens make me laugh merrily. But we must not therefore conclude that the faculties which feel this joyous sense of satisfaction directly influence the risible muscles also. We would be equally justified in inferring that they control the muscles of locomotion or of speech, because we may be induced to walk and talk in consequence of their joyousness.

Mental excitement caused by the pleasing satisfaction of Tune and Time may induce the expression of musical emotions by singing, through a sympathy existing with the cerebral centre which presides over the vocal organs ;* yet, notwithstanding, it is as improbable that the organs of Tune and Time directly act upon the vocal organs, as that the organ which desires wealth governs the muscles of the limbs in endeavours to procure it.

I consider the existence of a cerebral organ having the power of controlling the diaphragmatic movements that take place in laughing to be established, and that I have proved, *by comparing development and manifestation*, the situation of it to be as described. My investigations have extended over a period of twelve years, and have been made on a large number of people of a variety of mental types.

There is considerable difference in individuals between

* There is, in all probability, a faculty having a cerebral organ whose special function is to preside over the vocal organs, although it has not yet been discovered.

the susceptibility to joy and the executive power to express it through laughter. This may be accounted for by difference of general development, education, and training, but where all other conditions are equal, those who have a large development of the organ in question are more prone to laughing than others that possess a smaller development of it.

Some people are equally susceptible to laughter and dumpishness. They can weep and laugh alternately. The individuals of this class who have come under my notice have had an equal endowment of the organs of Graveness and Gayness, or nearly so. Some persons are exceedingly frivolous,—mere laughing automatons; they laugh at their own fancies, sayings, and doings, and the veriest trifles. In this class, Gayness will be found large; and the restraining powers small, or the intellect weak, or perhaps both.

38. Awe.

The cerebral mass situated between Gayness and Cautiousness, numbered 38 in the model bust, which I designate Awe, for the sake of distinction, appears to be the seat of distinct emotions, and is probably the organ of a primitive faculty. I have made observations on a large number of people with the view of determining the function of this part of the brain, and have found that individuals in whom it has attained considerable dimensions give indications of having an acute sense of awfulness, and of feeling pleasure in witnessing transactions and scenes of an awe-commanding character. They also have a tendency to describe the emotions produced in such contemplation in terms expressive

of profound *awe*. They are very susceptible to feelings of dread, and manifest greater fear under similar conditions, than persons who have a less development of this part of the brain, although the others may have larger organs of Cautiousness than they. Whether this cerebral mass is the seat of the emotion of fear, or whether its dominant activity tends to excite the organ of Cautiousness, and thereby gives rise to fear, I am not prepared with sufficient data to determine. When Awe and the organ of Sublimity are large, they inspire persons with feelings of awful grandeur in beholding such like scenes as great conflagrations, burning mountains, and ships in a storm.

Individuals possessing large Defensiveness, Destructiveness, Sublimity, and Awe, and moderate Benevolence, may feel a sense of pleasure in looking upon the direful carnage of war, and may simply describe the scene as awfully grand. Where this part of the skull and the organs of Gayness and Graveness are larger than those above and below them, they give a barrel-shape to the head.

CHAPTER XI.

SENSATION.

An outline of the senses will be of service here by way of introduction to the Intellectual Faculties.

Sensation.—The consciousness of external impressions is named Sensation, and the nerves which receive the impressions and transmit them to the brain are called Sensitive Nerves. These nerves are divided into five distinct classes or senses—*touch*, *taste*, *smell*, *hearing*, and *sight*. Besides these, there are sensitive nerves distributed throughout the internal organism that receive impressions from organic irritation. This class of nerves is termed the *Internal Sense*. Another class, called the *Muscular Sense*, is susceptible to impressions made by particular states of the muscles.

A complete exposition of mental science embraces every impression and sensation the mind is capable of receiving or perceiving, also their causes and media, their motives of action, and the stimulus they give to thought. In fine, mental philosophy includes the whole man, his mode of existence as a physical, rational, social, and moral being. But this work has a much less extensive scope. It aims only at a description of the method of inferring character

by the form of the head, and of accounting for individual differences of disposition, tact, talent, and aptitude; and it is not intended to import more into the subject than is considered necessary to this end, while, at the same time, the author is quite alive to the advantages that accrue to students of phrenology from possessing a knowledge of every department of mental philosophy, and all available information useful in the study of character.

The senses place man and animals in certain relations to the external world, and they are the media through which the mind becomes informed of the existence of material bodies and their qualities. They are distinct in function, each being adapted to receive particular impressions from distinct properties and actions, and constituted for the transmission of these impressions to the brain, where sensations are produced by them of a pleasurable or painful nature; and the mind forms idea concerning them.

Touch.—The nerves of the sense of touch are ramified over the entire surface of the skin and part of the tongue. They transmit to the brain impressions of the resistance that material bodies present to our movements, and such like qualities as hardness, softness, roughness, smoothness, sharpness, and bluntness, with the variations of temperature and of moisture.

Taste.—Branches of the nerve of taste are extended over the upper surface, sides, and tip of the tongue. Taste is placed at the entrance of the alimentary canal, to enable the mind to test the qualities of food and drink. Before a

substance can be tasted, it must be liquid or soluble in the mouth.

Smell.—The fibres of the extremity of the olfactory nerve are distributed over the internal surface of the nose, or pituitary membrane. Its function is to transmit impressions produced upon it by odoriferous particles that float in the air, to enable the mind to form a judgment as to the substances from which they emanate. The olfactory nerve is placed at the entrance of the lungs as a sentry to guard against the admission of atmospheric impurities. This sense puts us in relation with things at a distance, inasmuch as odours may be carried a long way on the wings of the wind.

Hearing.—The function of the auditory nerve is to receive impressions by atmospheric vibration, and transmit them to the sensorium, where they give rise to sensations of sound. It is therefore instrumental in bringing us in relation to sonorous bodies, and making us acquainted with their properties and conditions, and also their distances.

Sight.—The eye and optic nerve are the organs of this sense, and the intermedium is light. By means of reflection the visual properties of things are transmitted by the eye to the retina (the outspread fibres of the optic nerve situated behind the eye), and from thence the optic nerve conveys them to the cerebral mass adapted to their reception. By this and other internal media, the mind perceives such qualities as form, dimension and color.

THE INTERNAL SENSE.—The nerves of this sense are distributed throughout the internal viscera, having for their function the transmission to the brain of impressions arising out of the functional and organic conditions of the internal organism.

THE MUSCULAR SENSE.—The nerves of the muscular sense are distributed to the muscles in connection with the nerves of motion. They receive particular impressions by the organic and functional states of the muscles, and communicate them to the sensorium. They are the media of many pleasures and pains,—such as muscular freshness, fatigue, dead-strain, and various degrees of tonicity, flexibility, and resistance, and of injuries sustained by the muscles.

The nerves of sense are involuntary, and cannot help performing their functions under proper conditions, but where they are feebly impressed, proportionately weak sensations are produced, which may be inadequate to arrest attention. They are only media, and possess no power of discrimination, or of forming ideas. Discrimination is the distinguishing mark of the intellect, but the intellect is entirely dependent on the senses for information. An indispensable condition to the formation of correct judgments is distinctness of sensation, and to effect this a distinct impression requires to be made on the nerves with competent force; and it is also essential that the nerves be well formed and adequately developed. But vividness of intellectual perception and power of discrimination are not proportionate to the develop-

ment of the senses. Great inequality is observable in people in this respect. There likewise exists considerable difference in the degrees of sensitiveness of individuals, though their organs of sense be perfectly formed and fully developed. This is attributable in part to difference in size of the brain, organic quality, temperament, internal excitement, and health. But people who are alike in these conditions often manifest considerable emotional and intellectual diversity. To account for this inequality is the aim of phrenology, and it far excels all other mental systems for the purpose.

As a science of character, phrenology does not trespass on the province of metaphysics. It deals with facts, not theories. It enters not into the minutiæ of cerebral physiology in order to show how the mind is made conscious of physical existences beyond the limits of the functions of the senses. It recognises in healthy subjects an invariable connection between mental power, tendencies, talents and aptitudes, and cerebral conformation. *See the remarks on the Senses and their Functions*, p. 180.

CHAPTER XII.

INTELLECTUAL FACULTIES.

THE functions of the Intellectual Faculties begin where those of the Senses terminate. The Intellectual Faculties discriminate the difference in kind, quantity, and intensity of impressions, by the sensations produced, and they also form judgments of the qualities of those material bodies that make the impressions. They are, therefore, said to perceive external things. How these faculties perform their functions it is not our business to inquire. Suffice it to say, there is the strongest reason for believing that they act through the special medium of the anterior lobe of the brain.

The cardinal doctrine of Phrenology is, that like causes, under like conditions, produce like effects; and, consequently, when the cause is different, the effect is different. Likewise, where difference of effects is observed to exist, either in kind or degree, a difference of the producing cause may be legitimately inferred. Should two or more vigorous individuals, who have been reared under the same influences, manifest a difference of discriminating judgment, a difference in their Intellectual Faculties is the inevitable inference. But how is the capacity of the faculties to be measured? By one of two methods. Either by the mani-

festation of the faculties, or by the development of their organs. Phrenologists use both these methods, and they have irrefragably proved that difference of mental capacity and particular talents of people, other conditions being equal, invariably correspond with the difference in the general size of the anterior lobe of the brain, and the particular form of it. People who have the largest anterior lobes have the most powerful intellectual organism, and are naturally the most talented.

The anterior lobe of the brain is the seat of the intellect, and its size is the measure of intellectual power, other conditions being equal. To find the length of it, draw a vertical line from the centre of the zygoma. The height and breadth may be taken by callipers, but the calliper phrenophysiometre is the best instrument for the purpose. It records at once the actual length and height of the head, the relative lengths of the lobes, and the relative heights of the basal and coronal regions. The student should read the remarks on measurement (pp. 157–8), and on the frontal sinus (pp. 104–7), and would do well to master all the principles laid down in chapter ix. before proceeding further.

After ascertaining the extreme length and breadth of the anterior lobe, next find the relative lengths and breadths of the lower and upper parts of the forehead; for, when the lower part is largest, persons so constituted are more given to observation, and to collecting individual facts than to tracing causation and generalizing. They have more practical than theoretical talent,—they prefer the plane of matter-of-fact to the lofty regions of fancy. But when the greatest quantity of brain is in the upper and frontal portion of the forehead,

individuals evidence greater desire for inward reflection than for outward observation. They desire to understand the relations of cause and effect, and the likeness and unlikeness of things. Their range of thought is more comprehensive and profound. People whose foreheads are largest in the middle portion are more desirous of knowing the actions of things, and evince the greatest aptitude for observing phenomena, passing events, the relations and duration of intervals of time, and for discriminating the difference of sounds.

The faculties that are located in the upper portion are called Reflective, and those in the middle and lower portions are named Perceptive Faculties. Great difference is found to exist in the relative size of the organs of the Intellectual Faculties of individuals, and also a corresponding difference of talent. A description of the location and functions of these organs, with instructions how to estimate their size, and the talents they originate, is the aim of this chapter; but the expositions will necessarily be brief, except in the case of Individuality, which requires a more extended notice.

PERCEPTIVE FACULTIES.

22. Individuality.

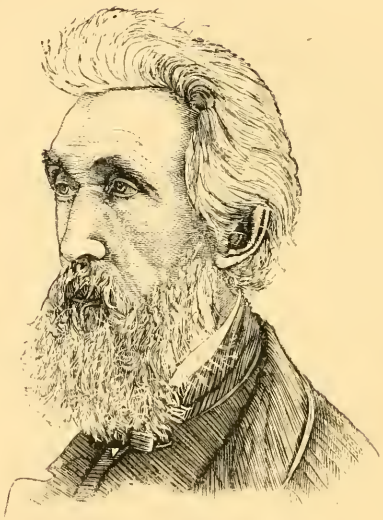
The organ of Individuality is located in the median line, at the top of the nose. Largeness of it gives breadth and prominence between the eyebrows. The actual length of

this organ is its distance from the zygoma-vertical line, and its relative size is in the ratio of its projection or depression in comparison with the adjacent organs. Where these organs are equally large, the exact dimensions of Individuality are not so easily calculated. This organ is very large in Elihu Burritt and Rammohun Roy (figs. 25 and 46); in the late Prince Consort, Archbishop Manning, Mr. W. Brockie, and Millais (portraits 10, 14, 22, and 25); it is moderate in Dr. Candlish and in Mr. Swinbourne (portraits 4 and 28).

The primitive aim of this faculty is to know the natural history of individual things, and it imparts an aptitude to observe with that aim. It is a fact collector, and gives no place to fiction. A large development of the organ gives a desire to study the natural history of man and animals, and the whole of animated nature, the strata of the earth, the mineral and vegetable kingdoms, the properties of the air, and the inhabitants of the ocean. The desire of some people is limited to the observation of external qualities of form, size, dimensions, and color; but some have a more extended range of desire. They long to know the nativity, development, constituent properties, durability, and use of things. The former possess a moderate sized organ of Individuality, the latter a large development of it. A loaf of bread, for example, may please the eye and palate, yet leave a sense of dissatisfaction, because some of its constituent elements are hid from view. Dominant Individuality would prompt an inquiry into the composition of the loaf, —how grain is produced, gathered, dried, stacked, thrashed, and winnowed; how it is ground, dressed, and manufactured into flour and bread; and the chemistry of fermentation,

DANIEL MACLISE, R.A.

A large and active intellect, considerable desire for knowledge, great perseverance, but small social feelings,—are denoted by this likeness. The perceptive organs generally are largely developed, and those of Size and Weight are very large. He would therefore have an acute perception of details, and a tendency to delineate them minutely in his pictures.



WM. BROCKIE, PHILOLOGIST AND EDITOR.

The perceptive organs of Mr. Brockie are enormously developed, and will be likely to produce an insatiable thirst for knowledge, accompanied with extraordinary talent for acquiring it. His character so markedly evidences these traits, that we have elsewhere described him as a living storehouse of facts. Individuality and Size have attained the largest growth. Destructiveness is well represented, which will give point to his denunciations and activity to thought. There is a manifest deficiency of Self-Esteem, both in development and expression. Mental fatigue is likewise depicted on the countenance.

Portrait XXII.

distillation, caloric, and the changes they produce, would probably not suffice to satisfy the craving of the faculty. It is not sufficient for such people to feel the cheering sensations of a winter's fire, but they must know the history of coal,—where it is found, how procured, what it consists of, and may be converted into. These questions may suggest another set of inquiries into the substance of coal, the time of its formation, the period which has elapsed since, and a thousand other suggestive thoughts may be started in the mind by predominant activity of Individuality.

Man's insatiable thirst for knowledge, however, is necessarily limited to his strength, and the span of his existence. Universal knowledge is a physical as well as a mental impossibility. The pinions of desire must be clipped, and her soaring kept within reasonable range, and some special department of knowledge selected. The selection is suggested by other large and active faculties, and by the influence of circumstances. The largest organs take the lead, and give the bent to the mind; but when all the organs of the intellect are equally large, a simple circumstance may so excite one or two organs as to give a direction to some particular branch of study, and by exercising these organs may increase their strength, and thereby fit them for continuing to lead in the pursuit of knowledge, in accordance with their special proclivities. But whatever may be the number and strength of such leading organs, if Individuality be dominantly vigorous, it will tend to give a characteristic feature to the literary taste. It originates a desire to individualize, but it does not cognize external qualities, and therefore must be assisted by the quality-perceiving faculties

in this operation, otherwise its efforts would result in failure. People who have this organ large, are prone to personify abstractions. I have, without exception, found that, where the organ of Individuality has been larger than Eventuality, the individual has had a stronger desire to study biography than general history. Elihu Burritt, the learned blacksmith, is indebted to the bulky dimensions and promptings of Individuality for his immense acquisition of knowledge. He has dived deep into the ocean of language, and has studied the history and connection of words, and the history of individuals. The late Prince Consort strikingly manifested the intellectual traits peculiar to this organ. Mr. William Brockie, philologist and linguist, is a living storehouse of facts, a literary reservoir, and the development of Individuality is very large in his head.

Dr. Gall adjudged the cerebral centre of Individuality and Eventuality to be one organ, to which he attributed the "Memory of Things," "Memory of Facts," "Sense of Things," "Educability," "Perfectability," and he designated it by these terms. He sums up a rather long disquisition thus:—"Numberless observations made upon man and every species of brute, leave not the slightest doubt that the sense of things, educability, perfectability, is a fundamental faculty whose organ is placed in the inferior-anterior middle part of the brain and head." Dr. Spurzheim divides this cerebral mass into two organs, and names the inferior portion Individuality, and the superior portion Eventuality. Of the former he says, "I speak, under the name Individuality, of the faculty which recognizes the existence of individual beings, and whose activity and presence are denoted by substantives

in language. I acknowledge that objects are inseparable from their qualities, and that these constitute objects; but I think it possible to conceive an existence or entity without knowing its qualities,—as God, the mind."

Dr. Spurzheim "acknowledges that objects are inseparable from their qualities." Notwithstanding, he still teaches that Individuality, which cannot perceive these qualities, "recognizes the existence of individual beings," and he tries to explain this anomaly by our being able to conceive an existence or entity without knowing its qualities, as "God, the mind." Here we have ability to conceive abstract existences advanced as a reason for believing in the existence of a special faculty whose function is to recognize concrete existence. Seeing, then, that objects are inseparable from their qualities, we are driven to the conclusion that, if the simple function of Individuality is to recognize existence, it must be abstract existence. But this is obviously the contrary of what the Doctor wishes us to understand, for he instances the tendency of Individuality to personify abstractions as resulting in abuse of the organ, thereby originating numerous and grave errors, and that inactivity of the faculty "disposes men to overlook or deny the existence of external objects."

Dr. Spurzheim's exposition, to say the least of it, is unsatisfactory; and some portions of Mr. Combe's are as much or more so. I quote from *System* (5th ed. revised) as follows:—"It gives the desire, accompanied *with the ability*, to know objects as mere existences." "In common life, a great development of this organ confers a talent for observation, curiosity to know, and aptitude of acquiring a know-

ledge of details." What details? Qualities of form, size, weight, color, number, order, and relative position, are essentially important details, without which objects cannot be cognized, but Individuality cannot cognize these. He continues, "When the organ is deficient, the individual fails to observe things that exist around him." "Although the external senses are in perfect health." What! a man whose organs of Form, Size, and Color are large and predominantly active may be surrounded by the marvellous beauties of nature, may walk in galleries of art amidst embodiments of symmetry, faithful transcripts of nature, harmonies of hues rivalling the wondrous beauty of the rainbow, and yet be insensible to these things because his organ of Individuality is small. Impossible! No, no, Mr. Combe; some other cause must be sought explanatory of such a phenomenon. Again, Mr. Combe further enlarges upon Individuality giving capacity for details. He says, "To the artist the organ is of great importance. It enables him to give a definite character to his conceptions, and confers upon him a capacity for attending to details." The prominence Mr. Combe gives to this feature of his exposition leads to the inference that he considered Individuality essential to an artist, and that without a large development of it, one would not be able to attend to details, notwithstanding every other faculty were vigorous and active. He does not specify any kind of details in particular, and therefore the legitimate inference is that all details are included by him, although I can hardly think that he intended to convey so comprehensive an idea.

No opinion expressed on phrenology by Mr. Combe, to which we cannot give our assent, ought to be lightly passed

over, or negatived without due consideration. Let us, therefore, examine his views on the importance of Individuality to artists. Supposing, for example, the subject of delineation to be a human portrait, and the artist a painter; and, supposing, further, that the artist has succeeded in drawing the outline of the whole figure, and each member of it correctly, both as to size and form; that the eyebrows, eyes, nose, mouth, chin, cheeks, and ears are accurately modelled; that each line is drawn the right form, depth, length, breadth, and strength of shade, so as to cause the muscles to stand out with due prominence,—or, in other words, that they are modelled properly; that he has drawn the hair of the head, moustaches and beard truthfully, and given to every part the proper color. In brief, so far as form, size, and color go to make a likeness, every part is all that can be desired. What details would be required to give definiteness to the picture? None whatever. "You are wrong," replies the critic, "the details of expression are wanting." Are they? Look at the picture, examine it thoroughly, and compare it with the original, and see whether you have not spoken rather hastily. I know artists talk of the form being correct, and the expression incorrect; but, I hold that, where the form, size, and color, light and shade, are correct, the expression is likewise correct, and that where the former are inaccurate, the latter is necessarily so too. But, supposing that the expression were defective, what faculties besides large Form, Size, and Color, and the powers which give aptness of manipulatory skill, are essential to the power of giving the requisite life-like finishing strokes? I answer,—exactly the same faculties,

whose natural language gave the particular expression to the original.

The preceding reflections do not apply with equal force to all artistic delineations. The details of a historic painting particularly call into action the organs of Individuality and Eventuality for the purpose of collecting the necessary facts and events of the period intended for illustration, and for comprehending the details before they can be suitably embodied and delineated in a picture. If this be what Mr. Combe means by Individuality enabling the artist to give a definite character to his conceptions and to attend to details, then I agree with him, but he gives no such qualification.

It is very interesting and instructive to watch the operation of the natural language of the faculties. I again appeal to the experience of my friend to see what light it may cast upon the subject in hand, who, be it remembered, is made conscious by peculiar sensations of the active operation of nearly every mental organ. I have observed, when he has exerted much effort to recollect the names of things—such, for example, as plants and trees—that he looked straightforward, his eyebrows being comparatively open, and the intervening space free from wrinkles; that, in thinking of internal properties his eyebrows drew towards each other, so as to form four perpendicular furrows between them, varying in depth in proportion to the intensity of the apparent effort put forth; that, in trying to recollect their forms, his brows opened considerably and lessened the perpendicular furrows; that, in trying to recollect their relative sizes, the eyebrows opened farther; and that, in picturing to himself the form, size, and color of the plants, his

eyebrows opened entirely, leaving hardly a trace of the perpendicular lines; but immediately, on turning his attention to internal properties, and trying to remember whether any plant is indigenous or exotic, his eyebrows approached again, and reformed the perpendicular furrows. Thinking of the internal properties and uses of forest trees produced similar effects, but when he united to these, their forms, sizes, and uses, the eyebrows opened as before. He minutely described the sensations during these processes of thought, and I found them to be quite in harmony with the changes of expression just described. When he thought of internal properties, or endeavoured to recollect the country of which a tree or plant is a native, he felt his powers of thought concentrated in between the eyebrows; when picturing forms before his mental vision, he felt the sensation in the organ of Form; and, as he added more external qualities to the picture, thought became less concentrated, and the internal sensation went on to cover a larger area, quite in keeping with the number of external qualities added, until all the details of the picture were filled in. In thinking of names, he felt the internal activity behind and above the eye, and also outward above the external angle of the eye.

People that possess a moderate sized organ of Individuality, and are engaged in a profession which requires a retentive memory for facts of things and internal properties, will be found to have strongly marked perpendicular wrinkles between the eyebrows, which are indications of great and protracted efforts of Individuality. When the organ is large and vigorous, facts of existence are remembered with greater

ease, and the outward indications of mental effort will be found to be less distinct.

Mr. Combe, being alive to the objections that might be brought against his exposition of the functions of Individuality, afterwards supplemented it with explanatory notes at p. 149, wherein he says, "The function of Individuality, therefore, is to combine the elements furnished by these our knowing faculties into one, and to produce out of them single conceptions of aggregate objects; which objects are afterwards viewed by the mind as individual existing things, and are remembered and spoken of as such without thinking of their constituent parts." It is highly probable that existing things are remembered chiefly by Individuality. But it cannot view an individual existing thing without the aid of the quality-perceiving powers, neither in reality nor in imagination.

Mr. W. Scott also considers Individuality to be the combining faculty, and ably elucidates his opinion in an elaborate article in the *Phrenological Journal*, vol. x. pp. 226-60. If this view were correct, it would follow as a necessary consequence, that people who possess all the intellectual organs large, except Individuality being very small, might be capable of vividly perceiving the external qualities of things, yet would not be able to combine them so as to form an intelligent conception of things in the aggregate; and persons might have the organ of Individuality so little developed as to be devoid of the quality-combining power, and therefore be incapable of perceiving an individual existence. Was ever such a case known? I have never seen one, nor heard of a single instance approaching anything like to such a remarkable state.

Dr. Gall attributed to Individuality and Eventuality combined, the *memory of facts;* but there are several species of facts which require many faculties to perceive and remember them, and the Doctor's attribution is too general. There are facts of existence, facts of configuration, of size, of color, of localities, of numbers, of events, of the time of their occurrence and the surrounding circumstances; facts of sound, cause and effect, similarity and difference; facts of heat, cold, dryness, and moisture. Individuality collects and remembers a certain species of facts only. A large endowment of it is of the utmost importance to the biographer, the practical chemist, and the geologist; very useful also to mineralogists, antiquarians, and artists.

23. Form.

Considerable dissimilarity is observed in the taste and discrimination of people with regard to configuration, and in the retentiveness of their memories for persons and things. Some desire symmetry of form with the intensity of a passion. They perceive minute disproportions with the quickness of intuition, and feel a chafing sense of dissatisfaction, amounting to disgust, in looking upon unsymmetrical objects; while the memory of many for configuration is as retentive as their perceptions are acute. Some, again, are the antipodes of the preceding class; the most symmetrical delineations of artists only commanding a cursory glance from them, or a passing remark; they, in fact, display an utter disregard for beauty of form. This class of persons are found to possess a small organ of Form; the former class

have the organ large. Between these extremes a considerable variety is observed in the degree of the size of this organ, and its manifestations.

Large Form is essential to the portrait painter, and all artists whose productions require to be formed with symmetrical precision. Mineralogists, crystallographers, and naturalists should have a good endowment of this organ. It is situated at the inner angle of the eye, and when it and Individuality are large, they give breadth between the eyes. But where Individuality is small, Form may be large, and the breadth between the eyes moderate. The size of these organs is somewhat difficult to estimate, and demands a practised eye and good discriminating judgment: and the frontal sinus presents an impediment liable to test the ability of experts. General rules may be given for finding the size of the perceptive organs; but the shape of the orbital arch varies indefinitely, and nothing but close application and great experience, coupled with favorable cerebral development, can insure success. Personal instruction would be useful to all students, and is absolutely essential to many.

Form is large in Miss Bateman (portrait 21), Maclise (portrait 23), moderate in Dr. Guthrie (portrait 13), and rather small in Dr. Candlish (portrait 28). It is small in the Scotch generally.

24. Size.

This organ and that of Form were treated of by Dr. Gall as one, but Dr. Spurzheim discovered that the qualities of form and dimension are perceived by independent facul-

J. E. MILLAIS. R.A.

This is the profile of a person who must be distinguished for remarkable mental acuteness. The eye is vivacious and penetrating, and every muscle seems to bristle with animation. The organs of Color and Individuality are very large, and Size is large. He will, therefore, manifest a keen sense of the harmony of colors, an exquisite taste for its beauties, a corresponding desire to embody and perpetuate it, and artistic talents of the highest order.

GUSTAVE DORÉ, ARTIST.

There is a quiet, unassuming, yet confident and earnest expression manifested here. The outward signs of extraordinarily vigorous faculties of Individuality, Size, and Weight are very prominent. He has first-class observant and manipulatory powers, and a base of brain calculated to impart unwearied activity.

ties ; and all subsequent phrenological investigators fall in with this view. A difference in the ability of people to judge of configurations and of dimensions is strikingly manifested, and a disparity in the development of their organs of Form and Size is equally as distinct. This organ gives the talent for forming correct judgments of dimension, or the space bodies occupy, and of areas. It is a necessary qualification for architects, naval and military officers, mechanicians, mathematicians, and artists. The situation of it is at the inner angle of the orbit, a little higher up and outward of the organ of Form. It is large in Maclise (portrait 23), Lord Napier of Magdala (portrait 3), Gustave Doré (portrait 24), Professor Syme (portrait 5), the late Prince Consort (portrait 10), and Mr. W. Brockie (portrait 22).

25. WEIGHT.

The name Weight is not so appropriate as could be desired. It is too limited in its signification. The function of the organ is to discriminate the gravity, density, and resistance of bodies, and to estimate the force necessary to overcome resistance, and to raise weights. It gives the talent for manipulating skilfully, and for measuring with delicate nicety the amount of strength to exert in the execution of very fine work. An operative surgeon, for example, who has a large development of it, will be able to adjust the force of his movements in the use of the knife with such precision as to exactly divide the minute fibres and membranes ; whereas, if sparely endowed with the organ, he will blunder in this respect, even after extensive prac-

tice. A pianist, having the organ large, will strike the keys with adequate force for producing the requisite sound, bringing out every note distinctly, and with much greater nicety than one who has a less endowment of it. So is it in all branches of art and mechanism. The influence of Weight is very markedly shown in the difference of skill developed by the operators. A large endowment of this organ is of the utmost importance to engineers, gunners, and rifle-shooters. It is very large in Gustave Doré (portrait 24), the renowned illustrative artist, in the late Professor Syme (portrait 5) who merited a world-wide reputation for operative surgery. It is large in Mr. Charles Halle and in Miss Arabella Goddard, the eminent pianists. I have examined the heads of several of the crack rifle shots in the kingdom, and have found the organs of Weight and Size large in all of them.

26. Color.

This faculty perceives color, and discriminates its harmony and discord. The contemplation, analysis, and combination of colors yield it pleasure, and it gives a desire to cultivate flowers, mix paints, and work with colors generally. Its dominant activity may prompt to the discovery of tints. The situation of its organ is about the middle of the orbital arch (*see model bust*). A large development of it is necessary to painters, and to all persons whose business it is to combine, harmonize, design the use of, and manipulate colors. It is very large in Millais (portrait 25), and he is noted as being one of the finest colorists of the day. Some individuals have been known who were color blind. I knew

DR. LIVINGSTONE.

Decision of character, unyielding firmness, constancy, and perseverance, iron hardness, considerable capacity for conquering difficulties, a quick penetrative glance, and splendid observing powers, are markedly indicated in both the contour and expression. The organs of Locality and Firmness are immense ; those of Size and Color are large.

a gentleman of superior ability who could merely distinguish a few of the strongest shades.

27. Locality.

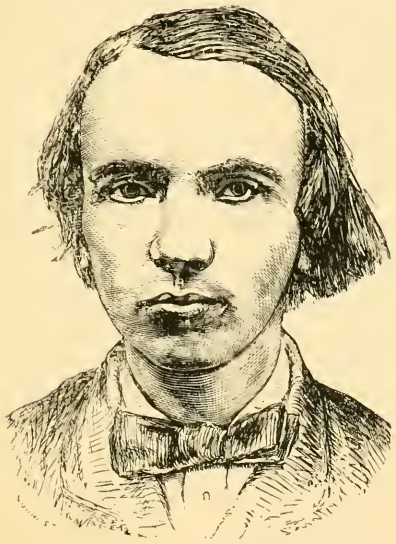
The faculty of Locality gives the desire to know the situation of objects, and the relative positions they bear to each other. It imparts a fondness for landscape scenery, and the talent to observe and discriminate the difference of localities. The primitive use of the faculty is to enable us to find our way from one place to another. Where it is dominantly vigorous, the ordinary routine of daily life, and a fixed abode, fail to satisfy its longing for fresh scenes, and it produces a desire to migrate and to explore unknown regions. Its sphere of action is not limited to the earth. It scans the heavens with admiring gaze, and notes the situations of all visible objects. It gives a desire for geography, topography, and astronomy, and contributes the principal elements of the talent for the study of these sciences. A good endowment of the organ is necessary for surveyors, navigators, generals, travellers, explorers, landscape-painters, and geometricians. It is situated along the side of Individuality and a portion of Eventuality, and above Size and Weight. Locality is very large in the head of Dr. Livingstone (portrait 27).

28. Number.

Difference of mental capacity is strikingly exemplified in the diverse talents for arithmetic and memory for numbers.

Some people have a genius for computation. No series of numbers seems too great for them to manipulate, or any arithmetical problem over difficult to solve, while some find the adding up of a short column of numbers very toilsome, and occasionally inextricably confusing. Such people may understand the rules of working well enough, but blunder in manipulating simple sums. The organ of Number is found large in the former and small in the latter. This organ is the seat of the talent for arithmetic, algebra, and logarithms, but the organs of Size and Locality constitute in a great measure the talent for geometry; hence these talents are not usually proportionate in the same individual. George Bidder and Zerah Colburn when very young displayed prodigious powers as calculators, but neither of them was distinguished for geometrical talent, and the conformation of their heads is in agreement with this. Masks of Bidder and Colburn were taken, and are now in the Phrenological Museum, Edinburgh. Figs. 51 and 52 are accurately drawn and engraved from photographs of these casts taken one-fifth the natural size. The dotted lines show the situation of the organ of Number. Dr. Spurzheim locates it a little lower down and farther forward than I do. After repeated observations, extending over a series of years, on various individuals who were distinguished for arithmetical talent, I am convinced that the situation of this organ is where I have marked it in the model bust, and at the most prominent part in the mask of Bidder (fig. 51).

Portrait No. 26 is a copy of a photograph I got taken of Alexander Miller for the purpose of illustration. The fullness of the organ of Number, it will be perceived, is a



ALEXANDER MILLER,

THE MONTROSE CALCULATOR.

For particulars of the marvellous power over numbers, for which this remarkable lad was distinguished, see pp. 41-43. The organ of Number is very large, and the intellect generally is fully developed.

shade higher up in Miller than in Bidder and Colburn. An account of that boy's astonishing power of calculation is given at pp. 41–3.

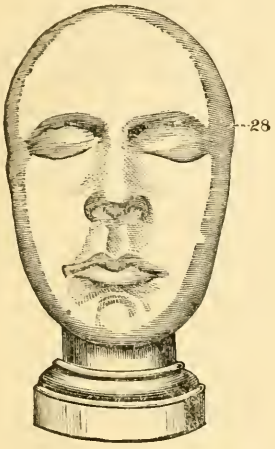


Fig. 51.—George Bidder.

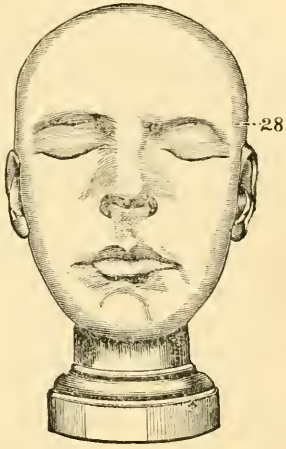


Fig. 52.—Zerah Colburn.

(Number is very large in both).

I examined the head of John Alexander, the Cawdor calculator, in February 1870, and found in it corroborative evidence of the correctness of my location of this organ. He went to a photographer with me, and sat for front and profile views of his likeness; but, before they were printed, some evil-disposed individual, operating upon his fears regarding the use I intended to make of his portrait, induced him to go to the artist and demand the plates to be broken. Alexander is about thirty-two years of age, stands about 5 feet

8 inches in his boots, measures 39 inches round the chest, and the circumference of his enormous head is 26 inches. He told me that from eight years of age he had been fond of calculating, that at an early period he had entertained the idea of seeking employment as a warehouseman in a wholesale commercial establishment, and that he had made bills of parcels an especial study to qualify himself for filling such an office, though he only went to school during eight months, and has little book knowledge.

In a letter to the editor of the *Nairnshire Telegraph*, Mr. William Raitt, teacher, thus refers to the Cawdor calculator's talent:—"He can multiply simple numbers to any amount at a glance, and he can tell the exact price of any number of articles or any odd quantity, even involving fractions, at any cost. The mere magnitude of the number does not seem to present much difficulty to John. Among other questions, I asked him how many letters there would be in a year's file of a daily newspaper of eight pages, each 7 columns, each 190 lines, each 42 letters. The answer, 139,873,440, was given in a few seconds. He is quite unable to explain principles. I have endeavoured in vain to ascertain what methods he makes use of in his calculations."

At my first interview with John, I tested his powers by a number of exceedingly difficult arithmetical problems, and his rapid solution of them, mentally, was truly astonishing, and fully bore out Mr. Raitt's account.

I asked John if ever he had felt the side of his forehead sore while calculating mentally, or if he ever felt an inclination to press any particular part of it with his fingers; and, if he had, to oblige me by pointing the part out. He

answered affirmatively, and put the tips of two of his fingers on the centre of the organ of Number. Many clerks and other persons, whose avocations call this organ much into exercise, have expressed themselves to me as having experienced similar sensations, and of having had an inclination to rest their heads on their hands, so as to press the part where the organ of Number is situated.

29. Order.

The faculty of Order likes everything to be placed in an orderly manner, and is disagreeably affected by disarrangement and confusion, of which it has, when large, an acute perception; but it does not perceive symmetry, and so individuals that have an equal endowment of the organ may have very different conceptions of the method of arrangement. Some are orderly without method, and others again are fastidiously nice in having things arranged in accordance with symmetry of figure and relative position. This difference of taste arises chiefly from a dissimilarity in the size of the organs of Form and Love of the Picturesque. Order promotes orderliness of habit and method in the expression of thought, and it probably takes cognizance of the order of sequence. It is situated betwixt Color and Number. It is large in Longfellow, Miss Bateman, and A. Miller (portraits 18, 21, and 26).

30. Eventuality.

The faculty of Eventuality adapts us to the laws of mo-

tion, and takes cognizance of phenomena, passing events, and actions and movements generally. Individuals who are largely endowed with this organ take a lively interest in occurrences,—they learn more facts of this kind in a day's journey than others that are differently gifted do in a month's travelling. Whatever moves within the range of the senses, animate or inanimate, has a tendency to arrest their attention; and those who have a good development of Language and moderate Secretiveness appear to take as much pleasure in relating the incidents that come under their notice, as in noticing them. Eventuality and Individuality give the taste and talent for history. The one remembers things that exist, the other their actions and movements. Individuality imparts more especially a taste for the study of individual character, Eventuality the history of nations and peoples generally. They are the mental storehouses of facts of existence and of action. People who are well endowed with these organs, with Time, and with Number, have a natural tendency to note down events in chronological order. This combination is an almost indispensable qualification for the historian, the editor, the teacher, and the story-teller. Eventuality is situated in the centre of the forehead above Individuality, and when large gives a rounded fulness to the part.

31. Time.

Great difference is observed in the habits of people with regard to the discernment of time. Some manifest a keen perception of the fleetness, brevity, and value of time. They

watch it lapsing with a lively interest, and measure periods and intervals with nice exactitude; whereas others are carelessly unobservant of time.

Many causes induce watchfulness of passing moments. Solomon says, "A wise man's heart discerneth both time and judgment."

It is certainly good for us to be alive to the fact that every pulsation announces lapse of time, and makes our number less, so as to exert a suitable influence over our mind and conduct; to be fully impressed that if we desire to do good we must not fold our arms in idleness, for our opportunities are lessening fast. But discernment of time is not a common index to wisdom. A highwayman might expect a person to have to pass through a lonely dell at a lonely season, and anticipate a rich booty in the exercise of his nefarious calling, and thereby be induced to discern the time with eagle-eyed watchfulness; a selfish workman may discern the time for the purpose of slipping into the workshop at the latest possible moment, and out of it again at the earliest period, regardless of his employer's interest; a fond parent may anxiously discern the time in the anticipation of an absent child's return; a needy but honest merchant may count the fleeting moments as they pass away with nervous dread, lest an acceptance should fall due before he were prepared for its discharge; and cultivators of the land must be watchful of the seed-time and the harvest-time. Still, after making full allowance for such inducements, there remain great individual diversities in the discernment of time, which can only be accounted for by the existence of a fundamental faculty whose special

function is to perceive time lapsing, and to measure the duration of phenomena, their simultaneousness or succession. All other conditions being equal, individuals who have the largest organ of Time have the liveliest sense of time gliding away, and the exactest perception of expired periods. They likewise manifest the greatest ability in measuring the duration of tones and intervals. A large development of this organ is essential for the attainment of high merit in instrumental and vocal music, elocution, and dancing. These arts, and graceful movements of every kind, are fitted to give pleasure to people thus endowed. Time is situated above Color and Order, and alongside Locality and Eventuality. It is very useful to the biographer and historian.

32. Tune or Sound.

This faculty perceives sound and its variations of pitch, kind, and quality. It discerns the difference between the wail of sorrow and the exclamation of joy, the shout of triumph and the lamentation of defeat, the merry clangour of the marriage bell and the mournful monotony of the death-knell. It discriminates the soft winning tones of benevolence and love from the harshness of oppression and domineering command; and so forth. It gives a desire and a talent for music in proportion to the size and vigorous activity of its organ An individual with but a full development of Tune may feel pleasure in listening to the performance of a band of music, but will only be capable of perceiving and fully enjoying simple airs. A larger development gives a

quicker perception of more difficult melody ; and the power of harmonic discrimination, and the capacity to enjoy music, increase with the size of the organ. Tune and Time give rise to the musical talent, and a large endowment of these organs is essential to the attainment of high merit. To persons so gifted, discord is exceedingly disagreeable, but exquisite harmony thrills them with pleasurable emotions.

The love of music, and the capacity to enjoy it ; the talent for composing it, and the ability to give expression to musical conceptions, either vocally or instrumentally, bear no common proportion to each other. Good vocal organs are an essential qualification for giving appropriate expression to music by singing, and the instrumentalist requires the organs of Size, Locality, and Weight fairly developed. Size and Locality give command of the relative dimensions and positions of the keys, and Weight imparts delicacy of touch. [*See exposition of the latter organ.*] Tune lies next to and outside of Time, and above Number. I have not observed the organ of Tune uniformly large in great singers, and am of opinion that a person having a good sized organ of Time, with Tune full, and the vocal organs suitably developed, may, by proper training, acquire considerable merit as a vocalist. The taste for any particular species of musical composition is determined by other faculties.

33. Language.

Dr. Gall describes the cerebral organ in question, its position, and external signs as follows :—"When the greatest part of the middle portion of the inferior anterior convolu-

tions, placed on the superior plate of the orbit, or on the roof, is greatly developed, this wall is not only flattened, but even depressed. Hence results a peculiar position of the eyes. In this case the eyes are at once prominent and depressed towards the cheeks, *so that a certain space is found between the ball and the superior arch, and augments its cavity.* This large cavity produces in the living subject, when he has the lids open, the appearance of a little pouch filled with water, and hence the name of *eyes with pouches.*"

The organ of Language being the first one discovered by Dr. Gall, and that which led to the science of phrenology, we would naturally have supposed, had he remained silent on the subject, that if any part of his system had been more complete, and had given him more satisfaction than another, it would have been this; but it was otherwise. He remarks:—"It will, no doubt, be thought singular, that it is precisely on the subject of this faculty and its organ that my works are least complete." This is precisely my position. For whether we turn our attention to the outward sign of the organ of Language for the purpose of ascertaining the size of it, or the nature and extent of its functions, we are beset with difficulties. A large development of one or more of the organs situated round the eyebrows has a tendency to alter the position of the eyes, and the effect of augmenting or reducing the breadth between them and the projection of the eyebrows likewise, which causes a difficulty in estimating the size of the organ in question; and, moreover, great diversity is observed in the talent of individuals for language, which is not precisely indicated by the eyes. There is,—*first*, a manifest difference in the memory of persons for

MISS BATEMAN, Actress.

This engraving displays an excellent phrenological configuration, indicating quickness of perception, a good memory for words, individuals, colors and localities. Power of pathos, imitation, ease of delivery, and elegance of diction are also distinctly observable. The physiognomy is marked for intelligence and sweetness of expression. The organs of Language, Form, Size, Locality, Eventuality, Graveness, Imitation and Wonder are well developed.

common terms, and for names ; *second*, in their capacity for committing words in general to memory, and in their power of verbal utterance ; *third*, in their desire for talking, and their ability to talk ; and *fourth*, in their desire and talent for philology. Some display excellent ability for committing words to memory, and for the use of them in written composition, but have comparatively little talent for public speaking. Again, others enjoy talking as one of their greatest pleasures, yet have little or no taste for studying the history and grammar of language ; while another class, of a taciturn disposition, spend days and nights in philological studies. To account for these varieties is no ordinary difficulty. *Notwithstanding*, no doubt exists in the minds of experienced practical phrenologists but that individuals having the conformation described by Dr. Gall do possess good natural talents for committing words to memory ; and that, where the intellect and the vocal organs are well developed, and in healthy vigour, such persons are better fitted for verbally expressing their thoughts and feelings than others in whom the latter organs are similarly developed, but whose eyes and under eye-lids are not so prominent, and in whom the space is less between the eyes and eyebrows.

In comparing the size and manifestations of this organ, it is necessary to take into account the relative size of the restraining organs also, inasmuch as a large and active organ of Secretiveness restrains the expression of other faculties, and loquaciousness is especially distasteful to it. Again, large Cautiousness, small Self-Esteem and Defensiveness combined, have a tendency to produce a hesitating delivery ; whereas people who possess a large endowment of the two last

mentioned organs, and a moderate degree of Secretiveness, Cautiousness and Language, have more self-confidence, are less restrained and better adapted for giving verbal expression to their thoughts and feelings. However, all other conditions being equal, individuals that have the largest endowment of the organ of Language, as estimated by Dr. Gall's rule, have the most retentive verbal memories, the easiest delivery, and the most copious flow of words. The disproportion between the memory for common and for proper terms manifested by some people probably originates from the frequent use of the one as compared with the other. The former will be fixed more durably in the memory by the impressive power of repetition; while the unfrequent use of the latter will make a less indelible impress, and they will be sooner forgotten. Still, individual differences remain to be acounted for, and these doubtless are attributable to cerebral conformation. The foreheads of persons distinguished for quickness of learning proper terms, and for remembering them, that have come under my notice,—and they are numerous,—have either been broader at the base, or fuller at the outer angle of the eyes, than other people's who were not remarkable for these talents. I have observed individuals with rather small and sunken eyes, but with considerable fulness at their outer angles, who had very excellent memories for names; and others, again, having more prominent eyes, but with foreheads narrower at the base, who had comparatively weak memories for names. Again, deep-set eyes do not always indicate small Language; for, when the perceptive organs are very long generally, they in certain cases cause the lower part of the forehead to project consider-

ably beyond the inferior segment of the orbital arch, and there is a corresponding prolongation of this organ. Mr. W. Brockie (portrait 22) is a case in point. Miss Bateman (portrait 21) shows a large organ of Language.

REFLECTIVE FACULTIES.

34. Comparison.

The faculty of Comparison perceives resemblance and analogies, and its primitive use would appear to be analysis and classification. The perceptive faculties perceive the existence of objects, their properties and actions, and this faculty compares and arranges them into genera and species, in accordance with the laws of similarity and of dissimilarity.

People in whom the organ of Comparison predominates manifest a natural tendency to reason by analogy, to draw comparisons, and to illustrate their ideas by example. They feel a difficulty in binding themselves down to the strict rules of logic in discussing a subject; and often astonish and captivate by fertility of conception and promptness in citing analogous cases; and by this means they may even lead their opponents off the track of true logical inquiry and deduction into the bogs of fallacy.

Comparison does not give the taste for particular kinds of illustrations; this depends on the proportionate development and education of other organs: for example, where Individuality predominates, the illustrations will be drawn

from the repository of facts, objects, or internal properties. Where Eventuality is the most active faculty, examples of history, phenomena, and occurrences will be given. In cases where Causality preponderates, it will supply analogies of cause and effect.

The other faculties of the intellect compare as well as the one under consideration, but their sphere of action is limited to the difference of degree in the qualities of objects to which they are specially related. Form compares things, and judges of their symmetry. Size likewise compares things, and judges of their relative dimensions. But Comparison compares things, qualities, causes and effects, and ideas that are different in kind. Of this the Scriptures abound with examples.

Douglas Jerrold compares soldiers to poppies, patience to strong drink, and finds a parallel in the effects of strong drink to a hothouse. He says, "Soldiers, looked at as they ought to be, are to the world but as poppies to cornfields." "Patience is the strongest of drinks, for it kills the Giant Despair." He describes a man as having a loose, potatile look, and adds,—"It was plain that his face, like hothouse fruit, had ripened under a glass."

It has been observed, as a general rule, that individuals having but a small development of the organ of Comparison, have an equally obtuse perception of analogies, that they can merely identify prominent features of likeness or unlikeness in different things or in ideas; and that a large endowment of the organ is essential to identify resemblance in the midst of very great dissimilarity.

This organ is situated between Benevolence and Eventu-

REV. DR. CANDLISH.

This portrait of the divine strikingly portrays inflexible determination, self-esteem, and great opposing power, comprehensive perceptions of relations, constant tendency to observe causation, and a talent for tracing it; and that he has splendid reasoning power. The upper group of intellectual organs greatly preponderates, Causality being especially large.

ality, and in some cases, where its size is much in excess of Causality, it stands out prominently like an inverted cone. It is very large in Mrs. M. P—— (portrait 19), but its form is somewhat broader in her head than is common with most people.

Persons largely gifted with Comparison, Eventuality, Individuality, and Language display extraordinary aptitude; and, by readiness of tongue, fund of anecdote, and fertility of illustration, carry off honors that other people of more extensive acquirements, depth of penetration and comprehensiveness of understanding, fail to obtain. These organs, in predominance, adapt writers and speakers to the majority of people, and to make them popular, inasmuch as the talents for profundity and logical acumen are the heritage of comparatively few.

35. Causality.

The faculty of Causality gives the desire and the ability to observe and to trace causation, proportionate to the size and vigour of its organ. In this respect the manifestations of people indicate considerable diversity of disposition and talent. Some simply take cognizance of facts, phenomena, actions, and the changes that take place, and accommodate themselves to their surroundings, but seldom or never inquire into causes. The heavens may be draperied with clouds of darkness betoking a coming storm; flashes of lightning may herald tremendous peals of thunder, and torrents of rain; the wind may gently fan the brow with delight or rage with fury; hail and snow, frost and thaw, may come

and go, and hundreds of unusual phenomena may appear and disappear without ever awakening in their minds a single intellectual act beyond common place remarks; but some folks are quite differently affected by such spectacles; they feel an earnest longing to understand the cause of every phenomenon, and are thereby spurred on to investigation. They ask—Why is this? how is that? how did these things come to pass? what will be the results? and rest not until they have got a satisfactory answer. It is from this class that our originators and discoverers come. They search out causes, adapt means to ends, and desire to bring everything to the bar of reason. On examining the heads of such persons it is found that the organ of Causality is large in them, while it is small in the heads of the first-mentioned class.

The primitive aim of Causality is to give us the intellectual conception that no effect can take place without a cause, and to enable us to perceive the relations of cause and effect, antecedents and consequents, and the result of our words and actions. Benevolence produces a disinclination to injure anyone by either words or deeds. Cautiousness gives wariness and circumspection, and these combined tend to make us circumspect in speech, look, and gesture, lest we might unwittingly offend or give unnecessary pain to the feelings of others. But however properly disposed an individual might be, through having these organs in high endowment, except he had a fair development of Causality, he would not have the requisite perception of the consequences of his words and actions, to qualify him for acting in unison with his disposition, and so he might unintentionally give offence.

Individuality originates a desire to know objects, Eventuality to know events, Comparison to perceive analysis, similarity, and dissimilarity; while Causality gives the desire to know the causes of occurrences, phenomena, and all changes that take place. It prompts us to judge of the motives of people in performing certain actions, and to estimate the weight of circumstantial evidence. It is the vigorous operation of this faculty that distinguishes the philosopher from matter-of-fact individuals, theorists from practical men. It gives a taste for metaphysics, abstract science, and logic. It prompts to the investigation and explanation of principles; and makes up, in great part, the profound and comprehensive intellect. When the organ of Causality is large in individuals, and the perceptive organs are small, it tends to produce abstractedness of thought, and a desire for the sphere of reason, to the neglect of facts, which makes persons so constituted appear heavy and dull to people of ordinary understanding. Causality is very large in Dr. Candlish (portrait 28), and he is said to be one of the most subtle reasoners of the day.

Human Nature.

Messrs. O. S. and L. N. Fowler locate an organ between Comparison and Benevolence, to which they attribute the "discernment of character, perception of motives, and intuitive physiognomy." People in whom Human Nature is very large are said to be able to "form a correct judgment as to the character of all they meet, and especially of the opposite sex, at the first glance, and as if by intuition."

This attribution is evidently hyperbolical. If such a talent be possessed, it must be an exceedingly rare possession. I never met with a individual so gifted. Nor have I heard of any well authenticated case where the mental manifestations would warrant the conclusion; that to "form a correct judgment of character at the first glance," is attributable to a fundamental faculty having a special cerebral organ.

True it is, that some people are very susceptible to the attractive and repulsive forces that are in constant operation in the human circles, and through a particular sympathy often realize the state of mind of other persons, and are thereby favorably or unfavorably impressed respecting them. But this impressibleness is not peculiar to people having a large development of "Human Nature." Furthermore, it is not the result of intellectual discernment, but an involuntary influx of foreign influences, and great sensitiveness thereto. Again, supposing the mind does, in some cases, discriminate and analyse, and form judgments with such extraordinary acuteness and rapidity as to approximate to intuition, the question arises, whether it exercises such function through the medium of the supposed new organ, or through the organ of Comparison? I am of opinion that it does so through the latter medium, and especially when the organ is largely developed.

Individuals in whom the upper portion of Comparison is large display much greater talent for perceiving differences than those who possess it in a smaller endowment, and many so organized are highly distinguished for this characteristic;—that is to say, they have the power of penetrating through the thick guise of similarity, and of detecting where-

in things or qualities slightly differ, an essential requisite for the discernment of character, and for the attainment of high excellence as a phrenological and physiognomical analyst.

Another property attributed to "Human Nature" is the "perception of motives." Now motives imply causation. They move us to act in a particular manner at certain times for special purposes. Here are cause and effect clearly established; and if one faculty of the mind more than another takes cognizance of these relations, it must be that of Causality. So says reason. What say the facts?

Some people are habitually judging of the motives of others, who are neither distinguished for large Causality nor an enlargement of the cerebral mass described as the organ of "Human Nature." Many combinations of faculties prompt to the judging of motives; but, all other things being equal, I am convinced, from personal observation, that individuals who have the largest development of Causality display the greatest proneness to motive judging.

The Messrs. Fowler locate "Human Nature" exactly where Dr. Gall discovered the organ of Comparison to be situated. Dr. Gall says, "I often used to entertain myself on philosophic subjects with a philosopher endowed with great mental vivacity. Whenever he was embarrassed to prove the truth of his assertion vigorously, he had recourse to a comparison."

"I examined the form of his head, and observed in the external superior middle part of the frontal bone a great lengthened prominence, to which I had not given attention till that moment. This prominence commenced in the anterior superior middle part of the forehead, where it was

about an inch broad, and contracting itself in the form of a cone, reached the middle of the forehead, where it touched the organ of Educability (Eventuality)."—*Functions of the Brain*, vol. v., p. 121 (Boston ed.).

Supposing there were an organ having the function described by Messrs. Fowler, the designation "Human Nature" would still be conspicuously unprecise. For it comprehends the whole man, physical and mental, instead of simply compassing the function of a fundamental faculty.

Messrs. Fowler have labored so sedulously and so successfully in the service of phrenology, that any suggestion of theirs on the subject is entitled to thoughtful consideration; and the preceding remarks on "Human Nature" are made solely in the interest of the science to which they have displayed commendable devotion.

CHAPTER XIII.

THE EFFECT OF FACULTIES ACTING IN COMBINATION; TEMPER; MEMORY.

In concluding the exposition of Amativeness, I remarked that, as no single organ forms the character, I would first point out the locality of the organs and define their functions, then give a few practical reflections on the part each organ performs individually in the formation of character, and afterwards treat of the effects of combination in a separate chapter.

My original intention was to have carried this plan into effect, but I subsequently considered it advisable to give examples of the effects of faculties acting in combination as I went on. And having gone so fully into this department in defining the functions of the faculties, I deem further remarks on the subject unnecessary. The student should read attentively the exposition of every faculty; and those who desire examples of the combined action of organs are especially referred to pp. 189, 201–2, 251–6, 258–64, and 288.

Temper.—"Am I good or bad tempered?" "Have I a good or bad memory?"—are questions commonly put to a phrenologist by individuals whose characteristics and ten-

dencies he may have described, or may be describing. Let us first consider what constitutes temper, and in what does its goodness or badness consist. Anything that is well tempered is said to have got a due mixture of qualities,—such, for instance, as a knife that is neither too soft nor too hard, but is properly fitted for the purposes for which it has to be used. Should a knife not be of the requisite hardness or softness, it is bad-tempered in the degree in which it is over or under hardened, and unfit for use. It is much the same with man, although the parallel does not hold good throughout. A naturally even or good-tempered man, is one that has a due mixture of qualities, and is properly fitted to battle with the vicissitudes of life. A naturally uneven or bad-tempered man possesses an undue mixture of qualities, and is thereby unfitted for patiently braving the cares, anxieties, disappointments, joys, sorrows, and rebuffs, which he may have to encounter or be subjected to. The former may be likened to a well-built ship at sea that has a first-class outfit, and answers quickly to her helm; the latter, to an old, leaky, badly-built hulk that is difficult to steer, and which is ill-fitted with sails and running gear, and badly adapted for weathering a storm. A good-tempered man is one that governs himself. A person that has the power of self-control, and does not exercise it; that permits himself to be irritated by little annoyances, and to give outward expression to his irritation, is bad-tempered in every sense of the term. It is not the feeling, but the manifestation of the feeling that constitutes bad-temper; and the degree of badness is in proportion to the irritating cause, and to the natural sensitiveness of the offended person, and

his power of self-control. Hence we ought to distinguish between the feeling of ill-humour and the expressions of it. There does not exist in the mental constitution a special faculty of bad-temper, but the feeling arises from the disagreeable affection of any one of the faculties, or a number of them. Bad-temper, however, is generally a complex manifestation, and hence the well-known varieties of irascibility, peevishness, surliness, snappishness, and sulkiness; then there are vindictive, jealous, and cunningly-malicious tempered people. All these varieties have their bases in difference of craniological configuration, which are greatly influenced by states of health.

It is not my intention to give the combinations of faculties that tend to produce any variety, but rather to explain how ill-humour may originate from a few of the faculties that are least suspected of producing it. I may, however, remark that irascibility and impulsiveness arise from large Destructiveness and moderate or small Secretiveness and Cautiousness; and that surliness results when large Firmness is added to this combination. The disagreeable affection of large Approbativeness and Firmness gives rise to sulkiness.

Disorder disagreeably affects the faculty of Order, and is a provoking source of irritation to people in whom this organ is in great endowment. Dishonesty and dishonorableness offend the faculty of Conscientiousness. Disobedience and discourtesy annoy Self-Esteem. Even Benevolence may feel so disagreeably affected at acts of cruelty and tyranny as to produce a bit of ill-temper, and to unite with Destructiveness in chastising the offender.

I need not enter into the sources and effects of passion

arising from deeply wounded ambition, of disappointed Amativeness, and lacerated Acquisitiveness—they are well-known by painful experience and the annals of crime.

Temper has a physical as well as a mental basis. All other conditions being equal, individuals of the mental and sanguine temperaments feel more acutely than those of the muscular and abdominal temperaments, and are more precipitate in their resentments.

MEMORY.—"Have I a good or a bad memory?" Difficult question that. Who can answer it aright? Who can fathom the depths of memory,—scale its heights, measure its boundaries and capacity? Who can estimate its retentiveness, its variableness and irregularities? Its power to retain, and to yield up? Memory, in truth, is a psychical perplexity. It is a very important branch of mental science, and deserves a more extended notice than our allotted space admits of. The following particulars regarding it can merely be summarized :—

First.—Memory is not a fundamental faculty having a special cerebral organ, but is a common attribute of all the faculties of the intellect, each remembering its own perceptions and judgments; and there are as many varieties of memory as there are intellectual faculties. Individuality remembers objects and internal properties; Form remembers configuration; Color has a memory for hues; Number for computations, and the relations of numbers generally; Eventuality has a memory for occurrences; Tune for sounds and harmony; Comparison for similarities and differences of ideas, things, and qualities; Causality has a memory

for the relations of cause and effect; and so forth. Now, as these organs differ in development and vigour, so do their respective memories differ in power to recall their perceptions.

Second.—It is only by the manifestations of the reproductive property of the mind that memory can be gauged with any tolerable degree of completeness. What the retentive capacity of the mind really is, no one can estimate. It bids defiance to the most acute, deeply penetrating, and discriminating intellect; to the loftiest, most comprehensive, and profound understanding. We can merely know what is and what has been recalled; but how much still remains fast-holden in the death-like grip of retentiveness, in the deep unsearchable recesses of memory, will never be revealed in the present life.

Third.—Ideas are often retained before the mind's interior vision long after the external cause has disappeared. But when any mental effect has passed away, it may be reproduced by one of two methods; either by direct mental effort, which is called *simple or voluntary memory;* or by association of ideas, which might be named *compound or involuntary memory.* We are frequently unable to recall an impression until some occurrence, or some of the attendant circumstances, bearing some likeness to what we desire to recall, brings it before the mind. This process of reproduction is termed memory by the law of association of similarity. Ideas, however, are often revived by association where there is little or no similarity, by what is termed the law of contiguity,—that is, where dissimilar ideas are grouped together in an almost inseparable bond of union, so that

the recollection of one of them by any means, is almost sure to recall the whole.

Fourth.—Memory may be described as being extensive when all the faculties of the intellect are strong, inasmuch as every one remembers its own perceptions and judgments with a degree of retentiveness proportionate to the size, health, and vigorous activity of its organ, and the distinctness and force of the original impression.

Fifth.—An individual having but a limited intellect possesses but a limited memory; its range and power being limited in the ratio of the number of organs that are small. The faculties which have the largest organs have the clearest perceptions, and the greatest power of discrimination and recollection, all other conditions being equal.

Sixth.—Some people have what may be called a quick, but unretentive memory,—they rapidly learn by rote, but as soon forget what they have learned. Others, again, are of a very different type,—they can only learn by constant and laborious attention and frequent repetition, but once having succeeded in committing anything to the safe keeping of memory, they do not give it up again; it seems to have got a life-term of endurance.

Seventh.—Then we have what may be called ready and unready memories. A ready memory is one that can recall what it desires at will; you can never take it by surprise. An unready memory cannot enter into its archives at once. It requires timely notice before it can open the door of its intellectual stores, so as to select what is required.

Eighth.—Again, there is the disorderly memory, in which ideas, elf-like, come and go without arrangement; some-

times crowding at the door of egress like alarmed spectators in a playhouse at the cry of fire, at other times dancing before the vision in tantalizing wilfulness, and at all times intermingling confusedly. This variety probably arises from a tolerably well-balanced but moderate intellect, with small Continuitiveness, Self-Esteem, and Order.

Ninth.—Dr. Gall considered that every faculty of the mind had a memory; but Dr. Spurzheim limited this property to the intellect, which is the commonly received opinion. If we deny that the affective faculties have perception and discrimination, we shall be forced to deny that they have memory. If, however, the affective faculties have not memory, or the power of recalling their emotions, they exert a material influence over the remembering property. An individual with large Self-Esteem remembers insults much longer than one who has a small development of that organ. He is more touchy, quicker to perceive and to feel indignities, and is more indelibly impressed by them. A man in whom Approbativeness and Destructiveness are large and Benevolence small, will rarely ever forget persons who have traduced his character, or otherwise wounded his ambition. People who have vigorously predominating Conscientiousness will never forget what they owe, although they may have great difficulty in remembering their own outlying accounts. I know a commercial gentleman of this type, and am well-acquainted with his private history. He has lost very heavily by trading, and has thereby been involved in serious difficulties; yet, strange to say, he does not remember the names of the principal portion of his debtors, and the sums they owe him are apparently obliterated from his memory,

although his memory for what he owes is very retentive, and often vexatiously ready and sensitive. His organ of Conscientiousness is very large, and by its vigorous activity it keeps his obligations constantly before the mind. But Acquisitiveness is only full in development, and is too feeble to draw attention to its claims.

Tenth.—All the foregoing varieties may be dissimilar in different persons, although their phrenological characteristics be similar, inasmuch as memory has a constitutional basis. The temperaments and organic quality are the keys to unlock the doors of this truth ; still there would seem to be a door to an inner chamber, the lock of which they fail to fit ; for the best temperamental and qualitative analysis does not comprehend all the mnemonic conditions. Some persons are capable of remembering almost every mental impression ; every thing they read adheres, and the book of memory can be readily opened and its pages read at pleasure,—a power which could not be inferred by induction. One particular, however, regarding such extraordinary cases is certain, and may be easily and correctly inferred,—that is, if there be a difference in the development of the mental organs, there will be a corresponding difference in the memory of their perceptions.

Eleventh.—Health is likewise an important condition of memory. My memory for names is of the most dwarfish type. I often lose the recollection of the names of my most intimate and highly valued friends, and when my digestive organs are out of order, I am literally idiotic for names ; in fact, I can hardly, at such times, find words to express myself on ordinary topics, and if I concentrate my attention on

one subject at a time, I lose the ability to command suitable words to convey my ideas on all other subjects for the time being.

Twelfth.—Adequate impressibility and discrimination are likewise essential conditions of retentiveness. Impressions must be distinctly perceived to insure adhesion, future reproduction and identification; yet an impression may be forcibly felt and distinctly perceived, while the effect of it may yet be very transitory. In other words, intellectual perception, discrimination, and memory are not always of equal power. The two former may be acute, and the reproductive property very weak.

Thirteenth.—From what has already been advanced, it will be perceived that memory,—that is, the reproduction of previous impressions,—is a kind of activity of the cerebral organs that brings about a similar state to that which was originally produced, and that this may be effected either by internal excitement, direct mental effort, or external causes.

P.S.—The printer having notified that he could do with a little more copy as a tail-piece to the book, I here draw, from the chronicles of memory, the following original anecdote, by way of illustration, how lost impressions are sometimes recalled by incidental circumstances.

A teacher of music on one occasion lost a key-note, and all his efforts to regain it were unavailing. He searched the dark chambers of memory by the torch-light of thought again and again, but apparently to no advantage, excepting self-discipline. Still he persevered unflaggingly. His genius was taxed to the utmost in trying first one method,

then another, in the hope that he might, either by the association of ideas, by automatic cerebration, or by any other means, accomplish his purpose. To this end he repeatedly called into requisition his clarionet, on which instrument he was a proficient performer. During these trials and researches, time continued her course. Midnight had passed away, and break-of-day announced that the still, small hours of the morning likewise had come and gone. Wearied nature then began to solicit repose with a potency he could no longer withstand; he therefore wisely, though very reluctantly, determined to resign himself into the arms of Somnus. At this juncture, *a pig*, that inhabited an outbuilding, either through pity for the discomfited musician, or from some other cause, gave a sonorous grunt, which reproduced the long sought for key-note. Thus perseverance was finally rewarded.

T. MORGAN AND CO., PRINTERS, MONKWEARMOUTH, SUNDERLAND.

YALE MEDICAL LIBRARY
3 9002 01090 9282

Accession no.
Author Morgan, N.:
Phrenology.
1871
Call no. BF871
M6
1871
Bound by
A. STEWART,
90 Square
EDINBURGH